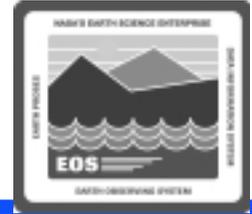


Subsystems and CSCIs: MSS

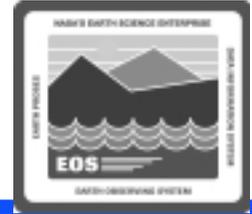


- **System Management Subsystem (MSS)**



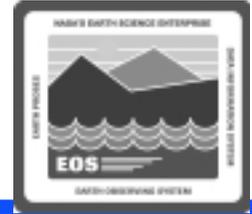
- Provides the set of tools needed by Maintenance & Operations (M&O) staff to manage ECS operations
- Addresses 5 areas
 - Fault Management
 - Configuration Management
 - Accountability Management
 - Performance Management
 - Security Management
- Installed locally at each DAAC and at System Monitoring and Coordination Center (SMC)
- Uses COTS applications extensively, including Sybase Replication Server
- Includes **ECS Assistant**, a GUI that runs an extensive array of UNIX scripts for system installation, monitoring, and administration

Subsystems and CSCIs: MSS (Cont.)



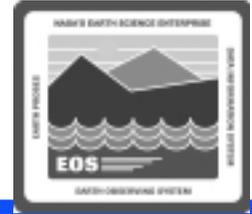
- **Management CSCI (MCI)**
 - Primarily COTS-based, with some custom software
 - Provides services for monitoring and coordinating ECS
 - **Network and Enterprise Management Framework component**
 - HP OpenView Network Node Manager (NNM)
 - Tivoli/Enterprise Console (T/EC)
 - Tivoli Distributed Monitoring (was Sentry)
 - **Security component**
 - Various freeware or public domain packages
 - Monitor and evaluate security and report status

Subsystems and CSCIs: MSS (Cont.)



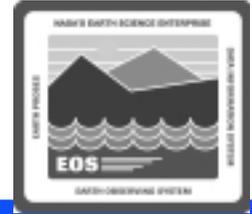
- **Management CSCI (MCI) (Cont.)**
 - **Accountability Management Service (AMS) component**
 - Custom software
 - Account Management Tool (for User Registration and User Profile updates)
 - Order Tracking Tool
 - Sybase ASE Server/Sybase Replication Server

Subsystems and CSCIs: MSS (Cont.)



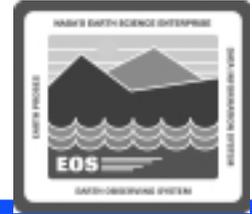
- **Management CSCI (MCI) (Cont.)**
 - **Trouble Ticketing** component
 - Custom-configured COTS software: Remedy Action Request System
 - **Network Backup/Restore** component
 - COTS software: Legato Networker
 - **ASTER Standard Header Handler** component
 - Custom scripts work with COTS e-mail to add a formatted header to all e-mail exchanges between the ASTER Ground Data System and ECS

Subsystems and CSCIs: MSS (Cont.)



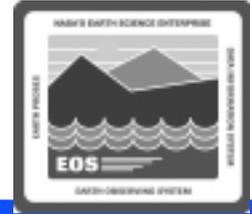
- **Management Logistics CSCI (MLCI)**
 - Implements Configuration Management services
 - **Baseline Manager** component
 - Customized COTS software: an XRP-II application
 - Uses UNIFY ACCELL Relational Database Management System
 - Helps DAACs, EOC, and SMC maintain records that document the hardware and software items that comprise baselined, operational system configurations

Subsystems and CSCIs: MSS (Cont.)



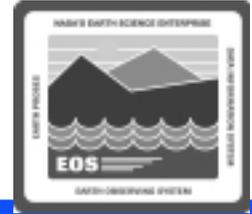
- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Inventory/Logistics/Maintenance (ILM) Manager component**
 - **Customized COTS software: an XRP-II application**
 - **Tracks and maintains key data on ECS contract-purchased equipment, hardware, COTS software, COTS documentation (hardware and software), spares and consumable items, and Government Furnished Equipment (GFE)**
 - **Stores and maintains detailed maintenance data on hardware to the component level, including preventive and corrective maintenance**

Subsystems and CSCIs: MSS (Cont.)



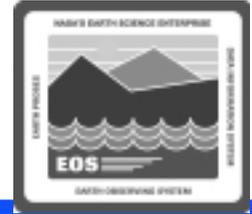
- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Software Change Manager** component
 - **Consists of COTS and custom software**
 - ClearCase (with some customization)
 - Supporting UNIX scripts
 - **Helps DAACs, EOC, and SMC organize and partition software, control software changes and versions, and assemble sets of software for release**

Subsystems and CSCIs: MSS (Cont.)



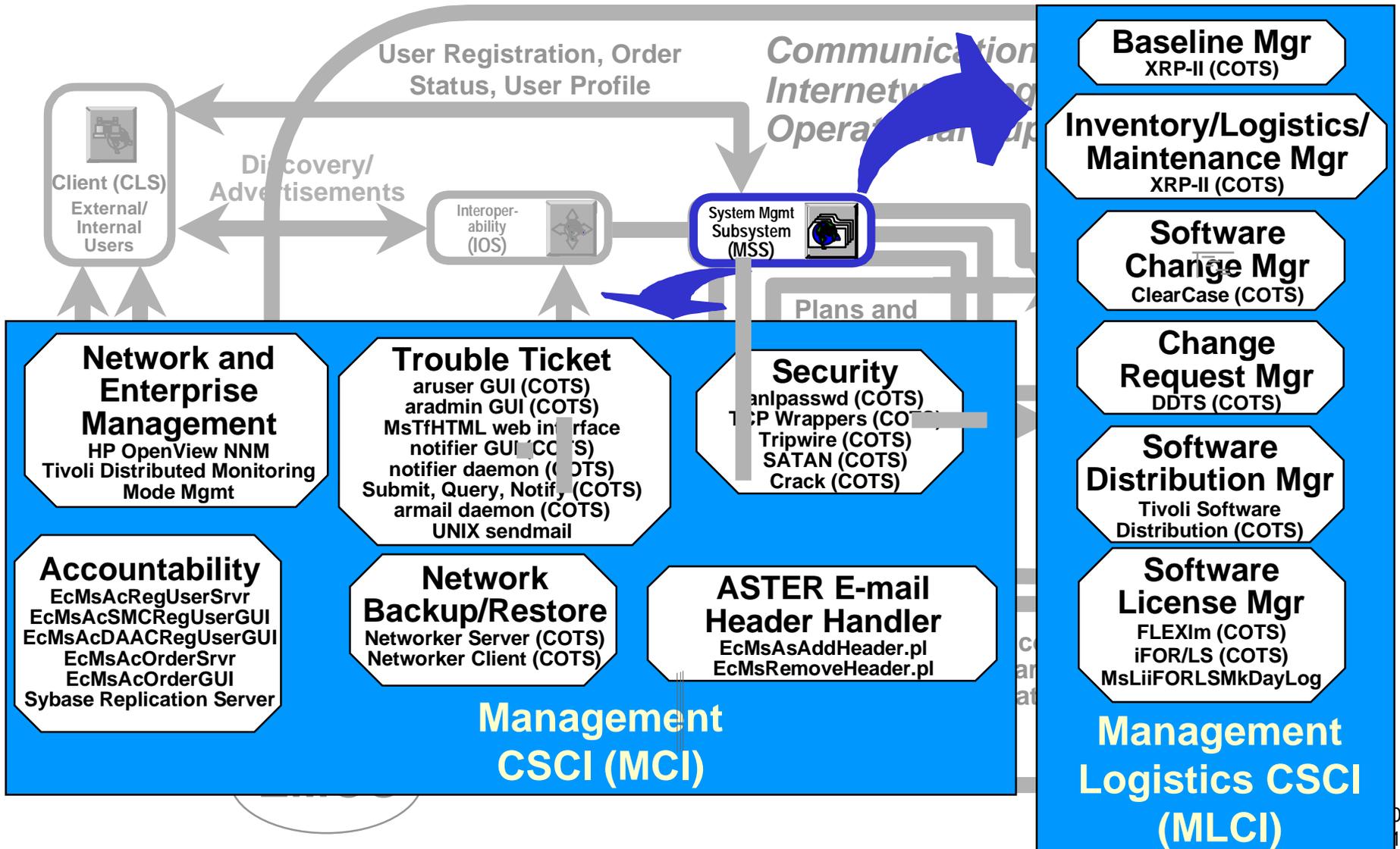
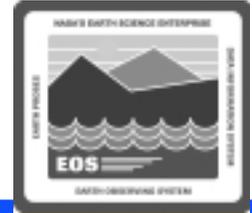
- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Change Request Manager** component
 - Customized COTS application: Distributed Defect Tracking System (DDTS)
 - Enables DAACs, EOC, and SMC to enter, maintain, and track Configuration Change Requests (CCRs)
 - Provides capability to compose and maintain local CCRs and to compose and submit CCRs to the SMC for system-wide consideration
 - Communication between site Change Request Managers can be established through a DDTS utility program and maintained by each site's DDTS administrator

Subsystems and CSCIs: MSS (Cont.)

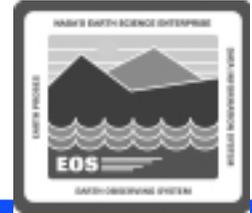


- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Software Distribution Manager** component
 - COTS application: Tivoli Software Distribution (was Courier)
 - Enables SMC and DAACs to distribute ECS software, database, software documentation, and commercial software files across a multi-platform ECS network
 - **Software License Manager** component
 - COTS and custom software
 - FLEXIm (license manager) and iFOR/LS (license server daemon) COTS packages
 - Script (MsLiiFORLSMkDayLog) that updates log files with iFOR/LS events when invoked for MCI Tivoli monitoring applications
 - Manages network licensing activities associated with using COTS products; maintains information about license provisions, meters use of installed licenses, and reports on licensing events and statistics

Subsystems and CSCIs: MSS (Cont.)



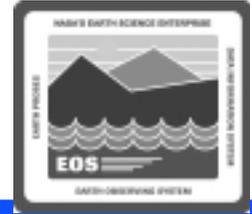
Subsystems and CSCIs: CSS (Cont.)



CSS/Distributed Communications Software

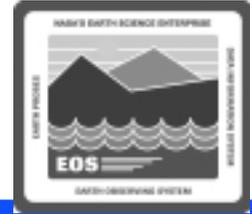
- **Communications Subsystem (CSS)**
 - Provides for interconnection of users and service providers and transfer of information within ECS and between ECS and other EOSDIS components, including a machine-to-machine gateway for SIPS access to ECS data
 - Supports and interacts with the System Management Subsystem (MSS), ECS Mission Operations Segment (EMOS), and all other subsystems
 - Uses several COTS tools: RogueWave class libraries, Builder Xcessory (GUI Builder tool), Sybase ASE Server (for Subscription Server insert, search, and update), DCE (for security services), UNIX Network Services

Subsystems and CSCIs: CSS (Cont.)



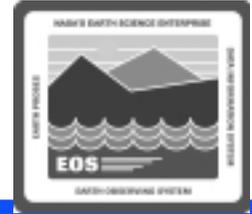
- **Distributed Computing Configuration Item (DCCI)**
 - **Subscription Server (SBSRV)** component
 - Detects previously defined events
 - Performs specified actions for clients that have previously subscribed to those events (e.g., science granule insertion, metadata update, science granule deletion)
 - **ASTER DAR Gateway Server** component (hosted at EDC)
 - Provides interoperability between ASTER DAR Client GUI tool and the DAR API which interfaces to the ASTER servers
 - **ASTER EMailParser Gateway** component
 - Support for automated delivery of ASTER Expedited Data Sets (EDS) from ECS to ASTER Ground Data System (GDS)
 - **Message-Oriented Java Object (MOJO) Gateway Server** component
 - Gateway for access by the ASTER DAR Tool to all ECS Services; directs DARs to GDS via ASTER DAR Gateway

Subsystems and CSCIs: CSS (Cont.)



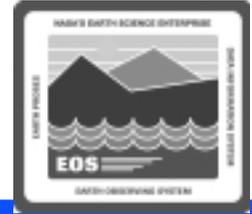
- **Distributed Computing Configuration Item (DCCI) (Cont.)**
 - **DCE Service Group** component
 - COTS software set (Cell Directory, Security, Time Services)
 - **FTP (File Transfer Protocol)** component (standard application for file transfers)
 - **FTP Notification** component (for notification of successful FTP pulls from a pull area)
 - **BDS (Bulk Data Server)** component (fast file transfer over high-speed networks such as HIPPI)
 - **NFS (Network File System)** component (for file systems sharing among computers)
 - **Filecopy** component (a simple utility to copy large files from a specified source to a specified destination, with compression options)

Subsystems and CSCIs: CSS (Cont.)



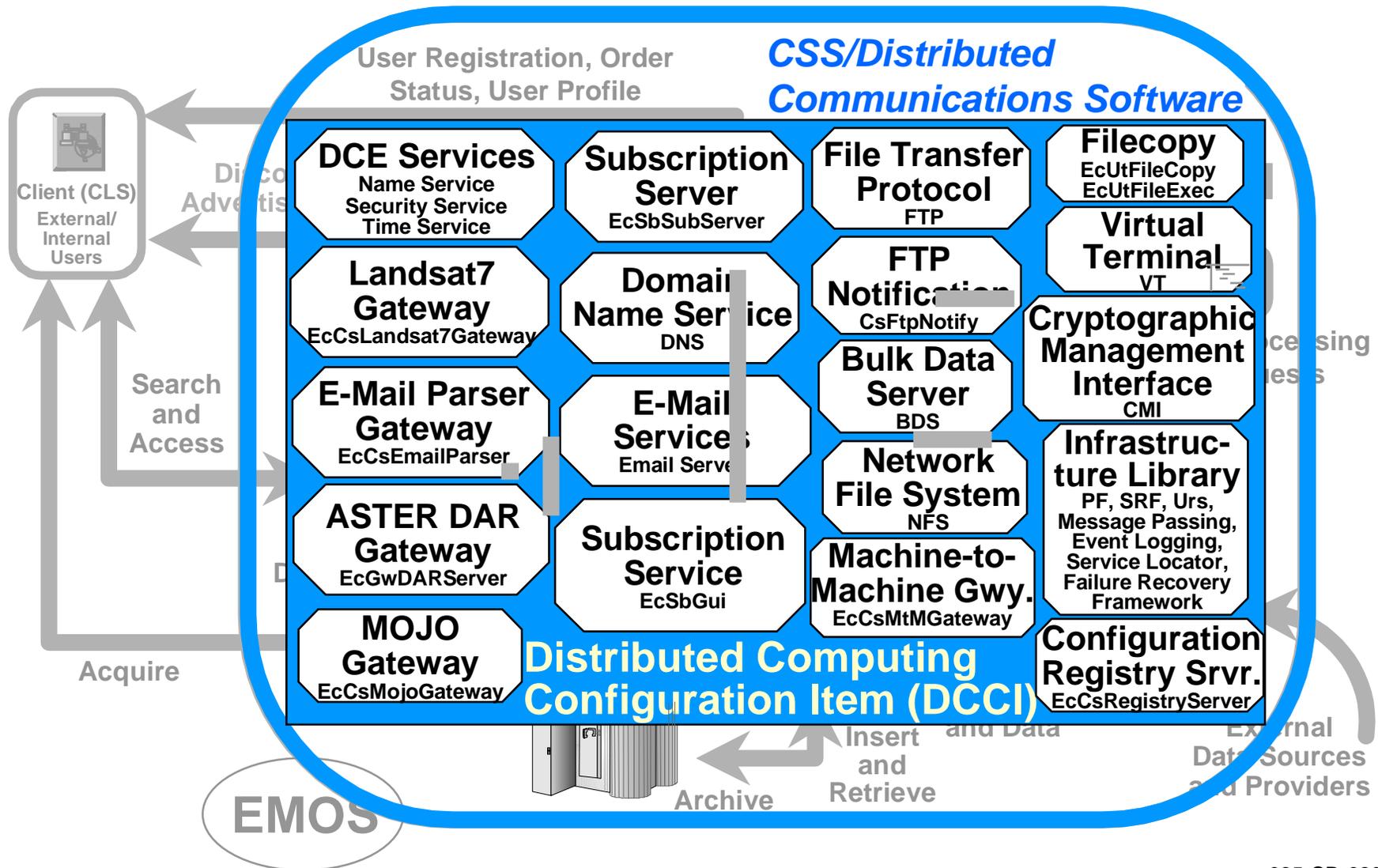
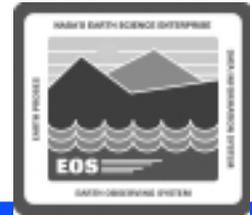
- **Distributed Computing Configuration Item (DCCI) (Cont.)**
 - **Landsat-7 Gateway** component
 - User access to data collected by Enhanced Thematic Mapper Plus (ETM+) instrument on Landsat-7 satellite
 - **Mail Support Group** component
 - Provides electronic mail, with an interactive interface and an object-oriented application program interface
 - **Virtual Terminal** component
 - Provides operators the capability for remote logon from one ECS machine to another
 - **Cryptographic Management Interface (CMI)** component
 - Allows operators to obtain randomized passwords for access to non-DCE services (e.g., Sybase)
 - **Machine-to-Machine Gateway** component
 - Provides an automated search and order capability to allow the Science Investigator-Led Processing Systems (SIPS) to reprocess data externally from the ECS

Subsystems and CSCIs: CSS (Cont.)

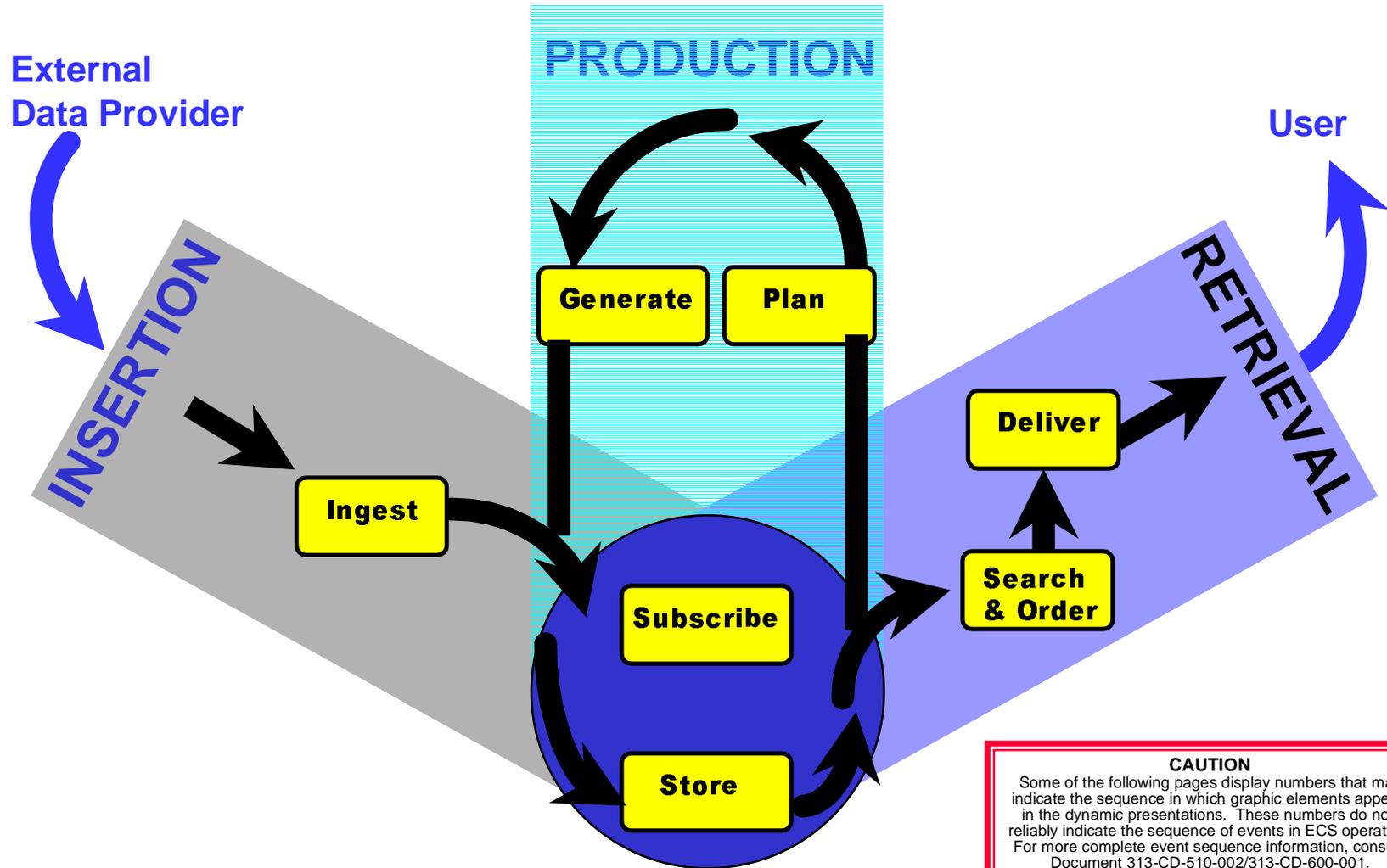
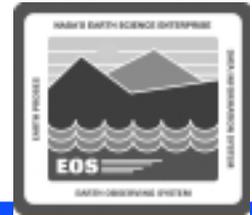


- **Distributed Computing Configuration Item (DCCI) (Cont.)**
 - **Domain Name Service (DNS) component**
 - Provides information about host names and addresses on a network by querying and answering queries
 - Performs naming between hosts within the local administrative domain and across domain boundaries
 - **Infrastructure Library component**
 - Provides a set of services to facilitate the implementation of client-server applications; includes Process Framework (PF), Service Request Framework (SRF), Message Passing, Universal References (URs), Event Logging, Service Locator, and Failure Recovery Framework
 - **Configuration Registry Server component**
 - Provides a single interface to retrieve configuration attribute-value pairs for ECS servers from the Configuration Registry Database, via Sybase Server

Subsystems and CSCIs: CSS (Cont.)

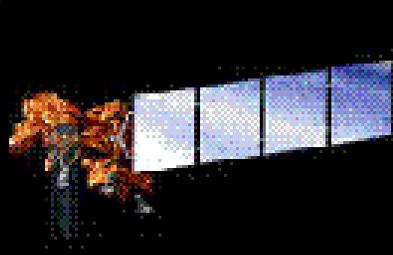
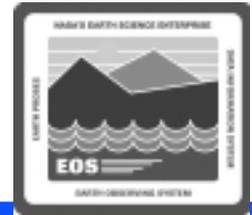


ECS Operational Functioning

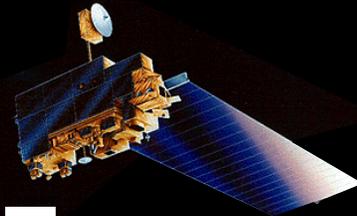


CAUTION
Some of the following pages display numbers that may indicate the sequence in which graphic elements appear in the dynamic presentations. These numbers do not reliably indicate the sequence of events in ECS operation. For more complete event sequence information, consult Document 313-CD-510-002/313-CD-600-001.

ECS Release 6 Focus



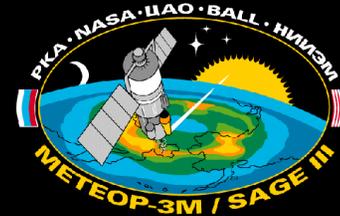
Landsat-7



Terra



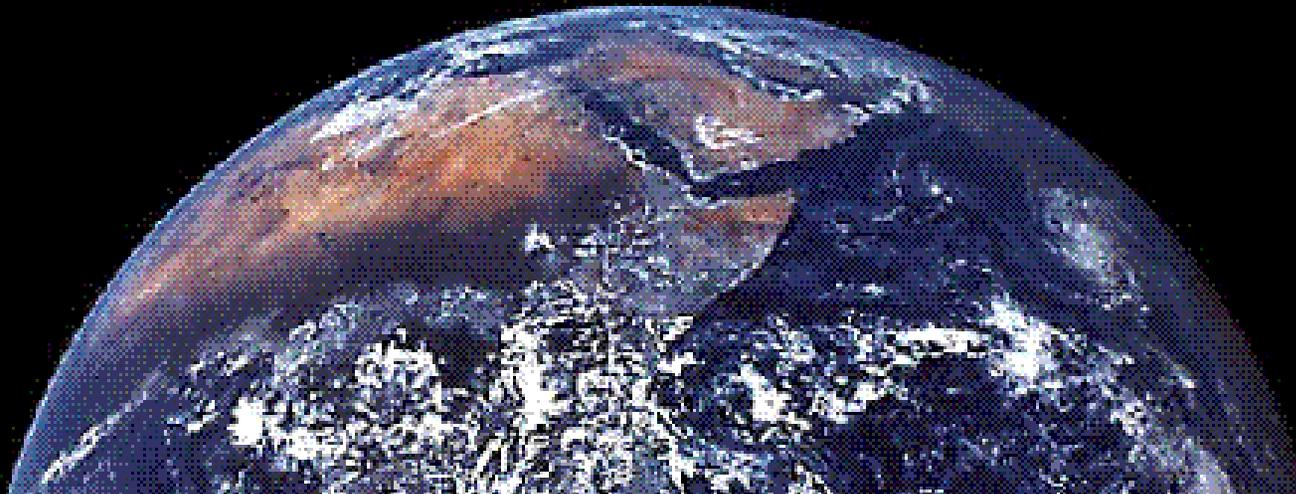
Aqua



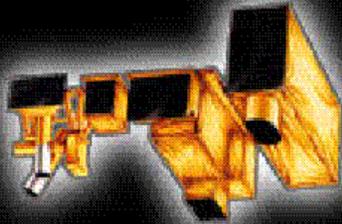
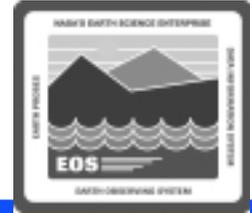
METEOR - SAGE III



NMC - DAO



ASTER Scenario



ASTER

- 1 DAR Support
- 2 Chaining
- 3 Expedited Data

ASTER Goals

- *ASTER DAR Tool Usage*
- *On-Demand Processing and Chaining*
- *SCF QA Metadata Update Workaround*
- *Simplified ASTER Expedited Data Support*
- *Data Tape Ingest*

ASTER Preconditions

ASTER ESDTs Inserted into ECS

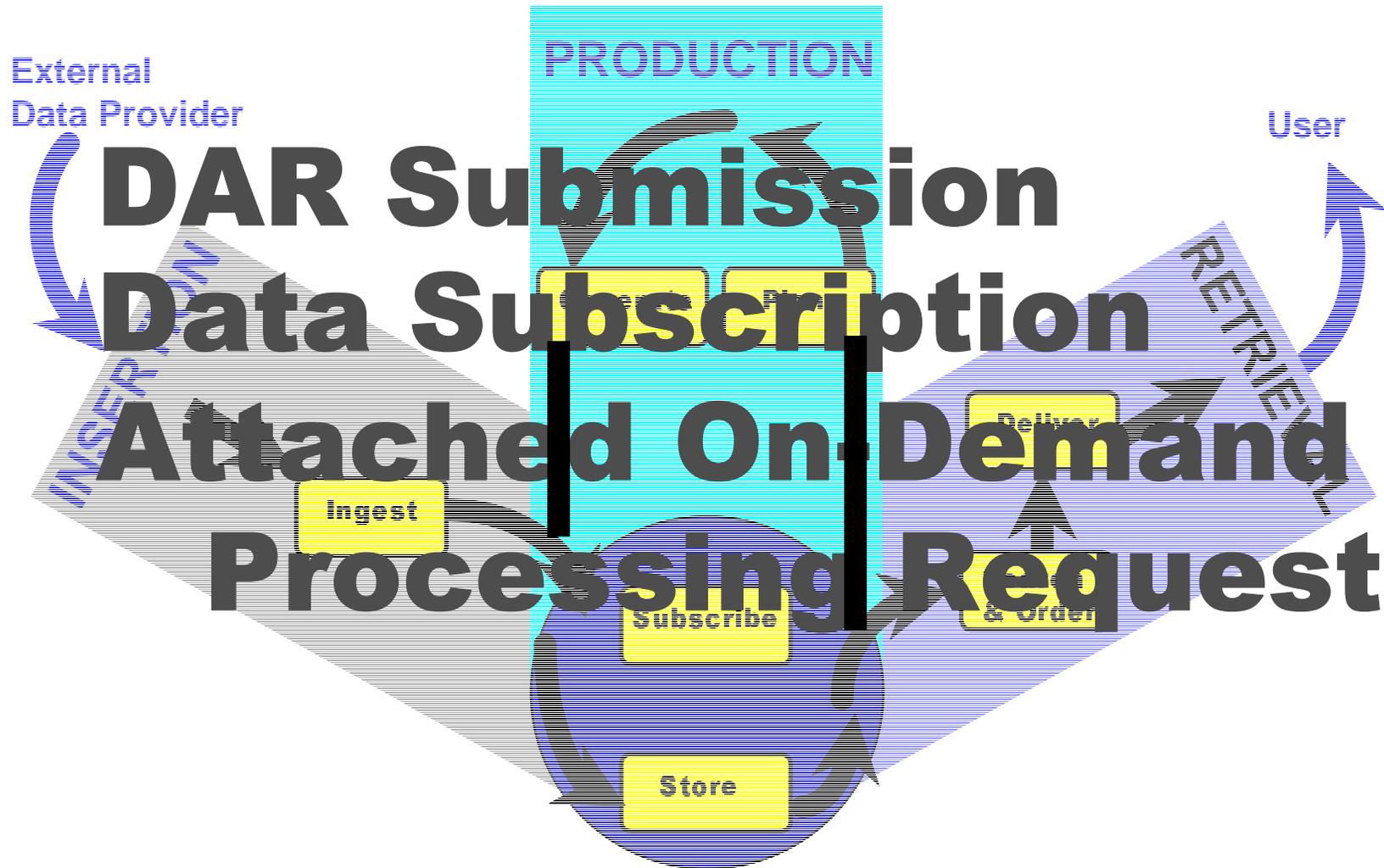
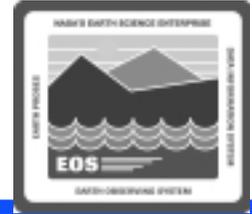
-AST Anc, AST Exp, AST_L1A, AST_L1BT, AST_09T, AST_04, AST_05, AST_08, GDAS0ZFH

ASTER PGEs passed SSI&T and installed

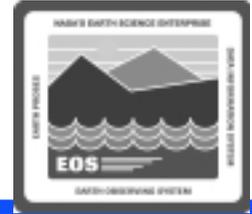
- ACT, ETS, BTS

Ancillary data inserted into Data Server

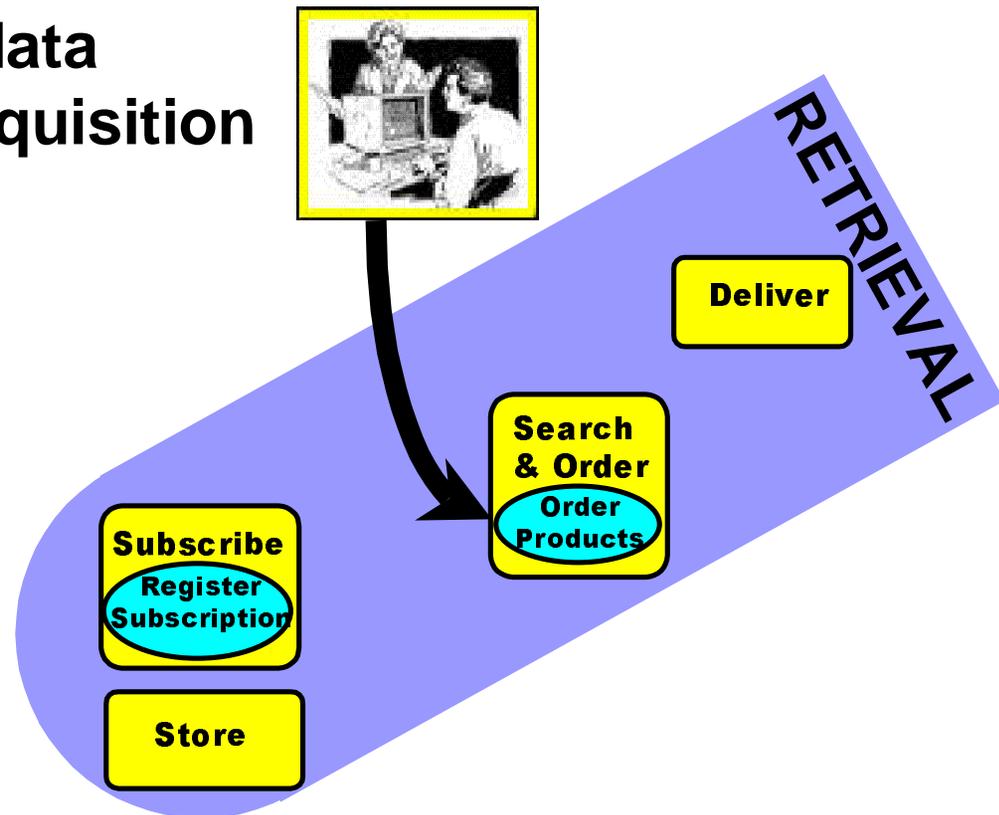
ASTER Scenario: DAR Support



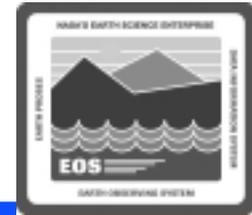
DAR Support



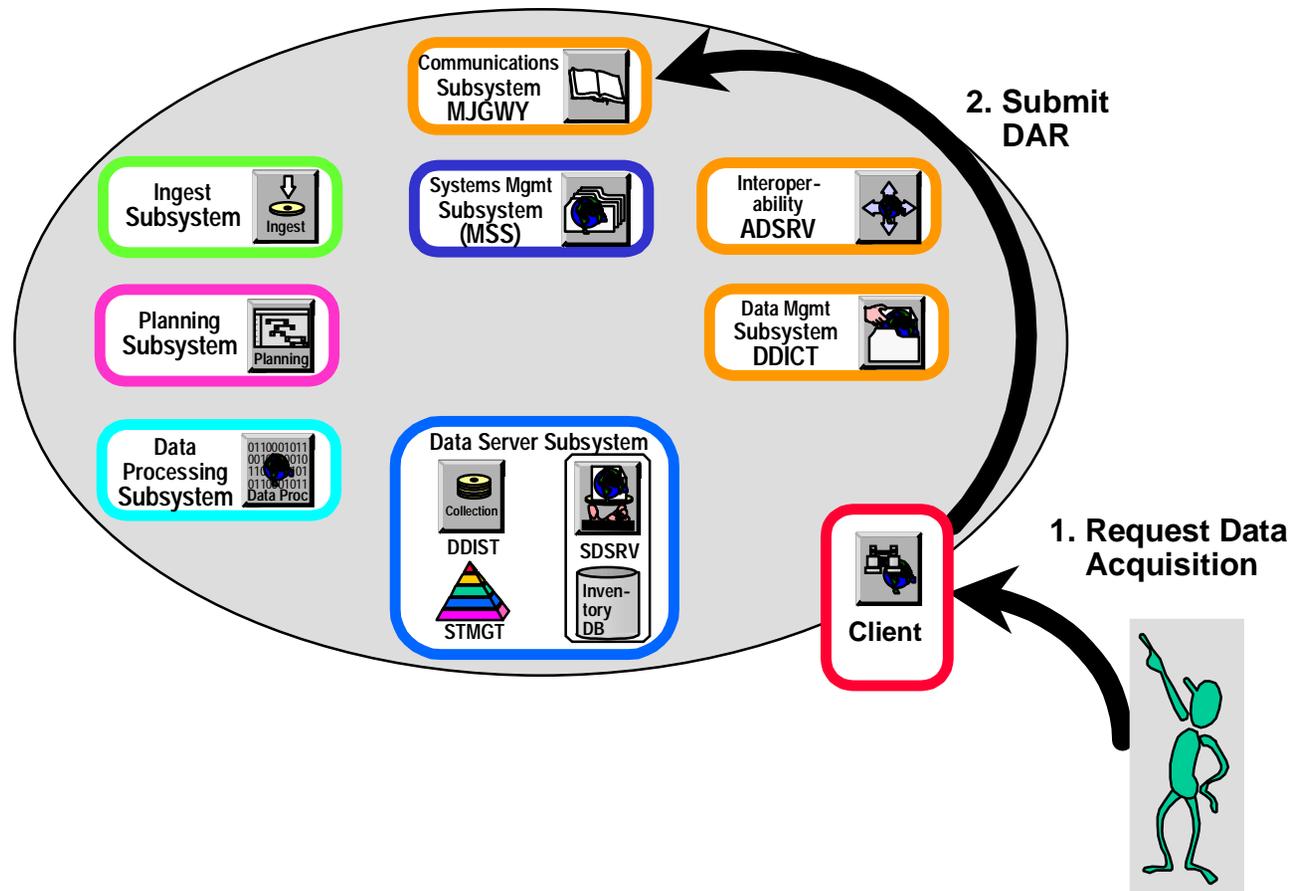
ASTER Scientist decides to request ASTER data requiring a Data Acquisition Request



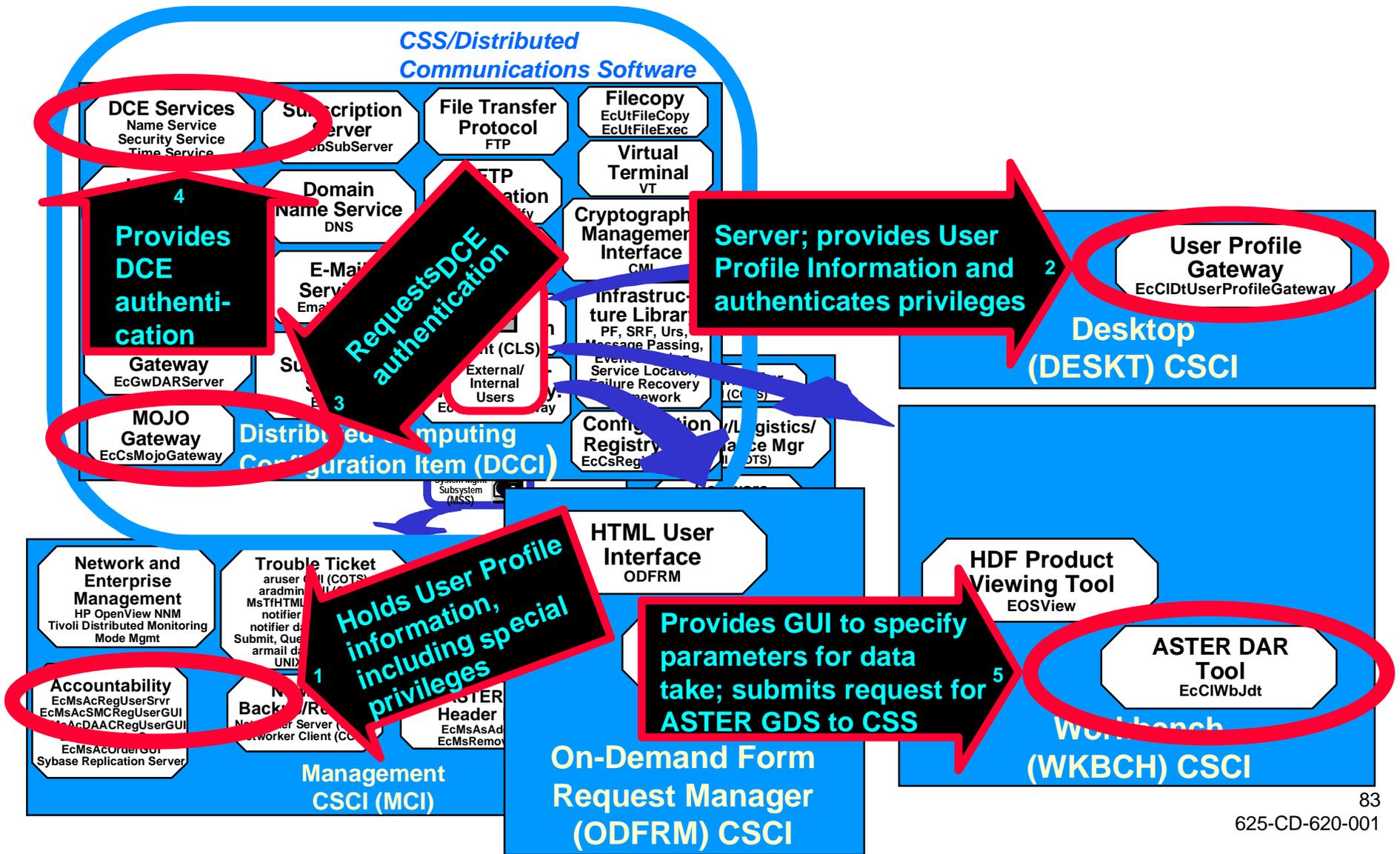
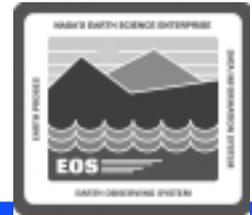
ASTER: Client Request Process



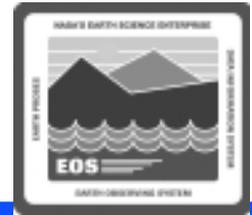
ASTER Scientist determines an area of interest. The scientist decides to request an ASTER data take over that area, using the ASTER DAR Tool.



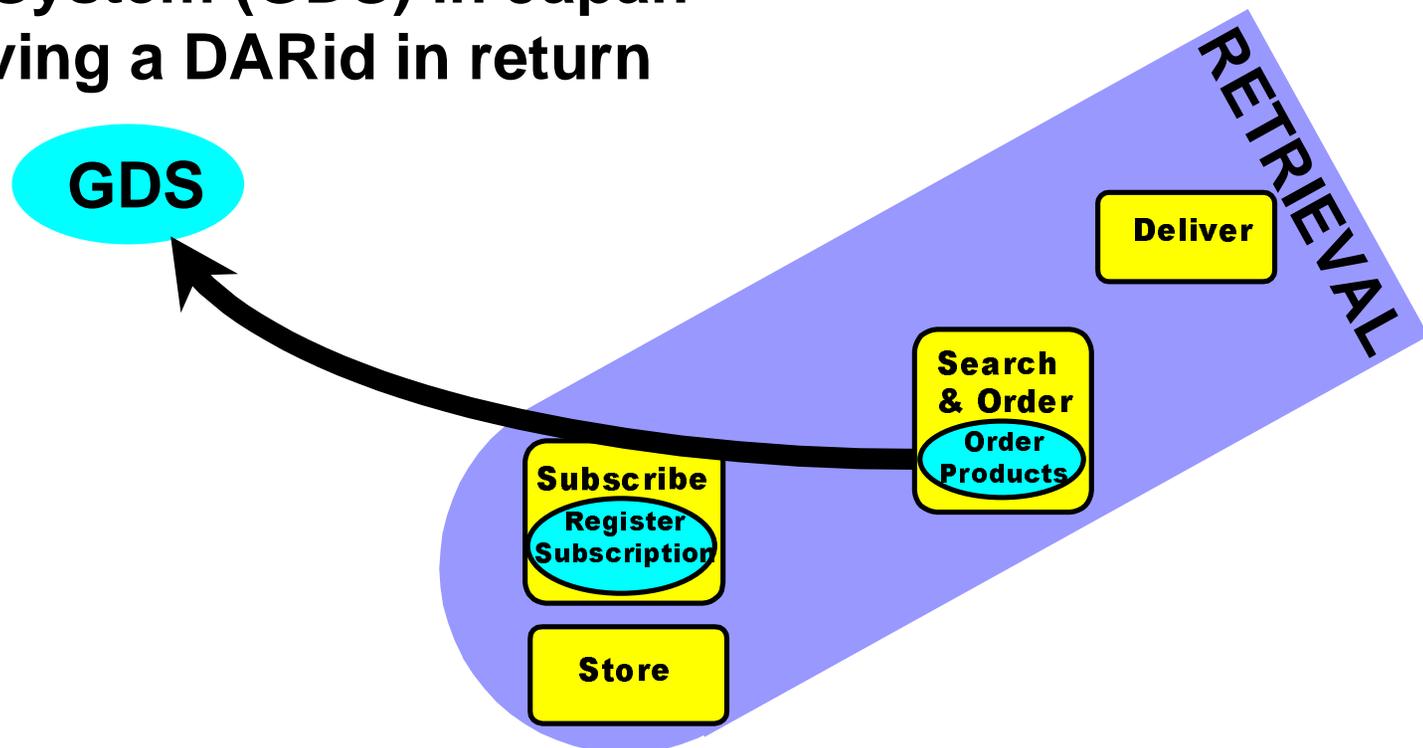
ASTER: CSCI/Component Role in Client Request



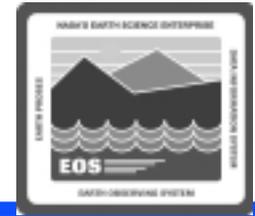
DAR Support (Cont.)



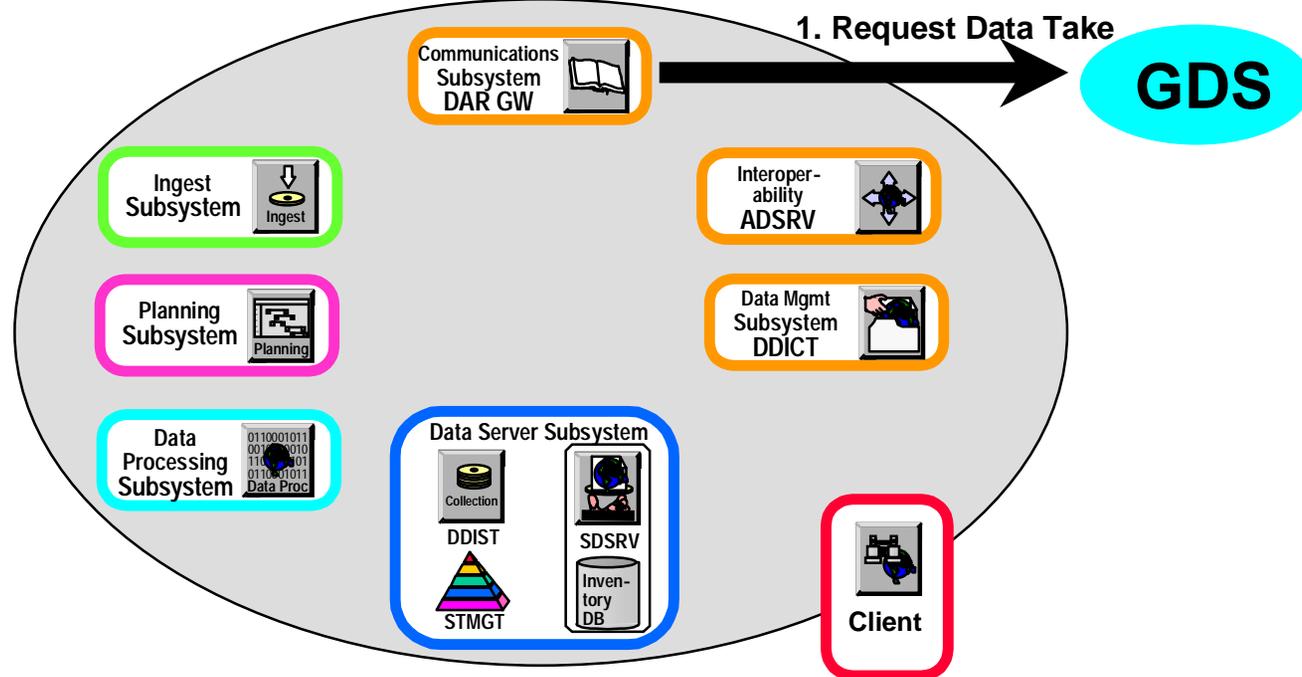
ECS submits DAR to ASTER Ground Data System (GDS) in Japan receiving a DARid in return



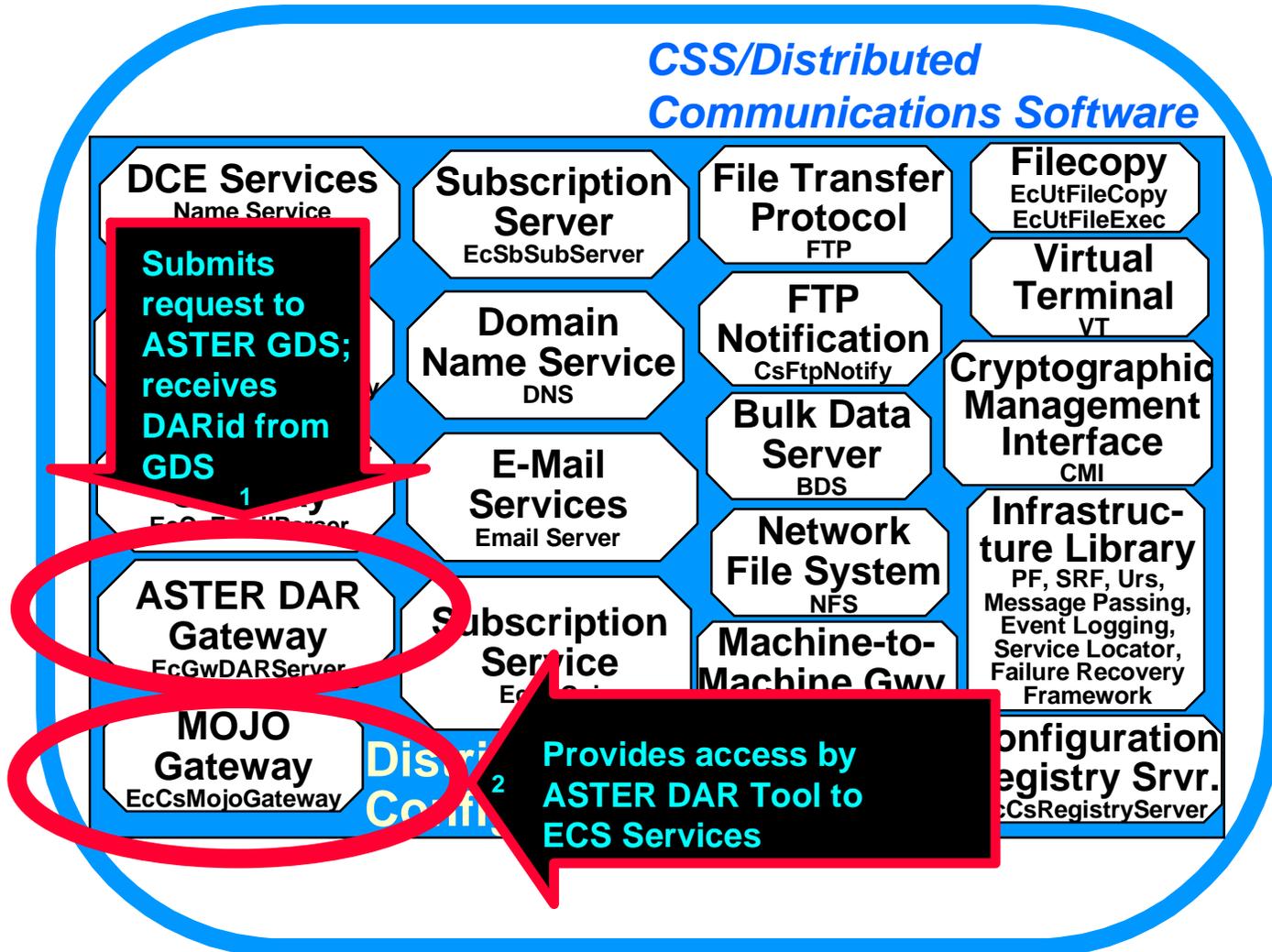
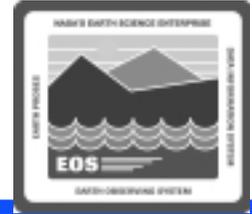
ASTER: Request Data Take Process



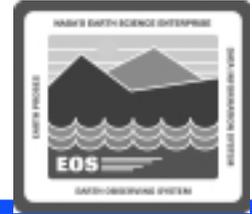
ASTER DAR Gateway submits a request for a data take over the area of interest. GDS responds with a DARid.



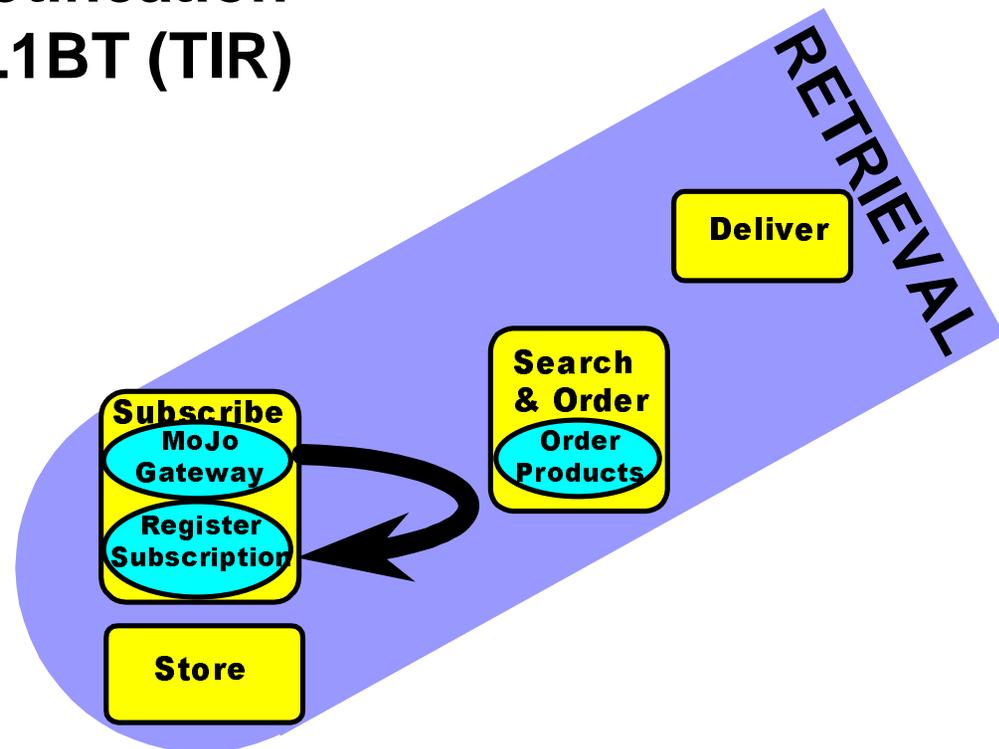
ASTER: CSCI/Component Role in Data Take Request



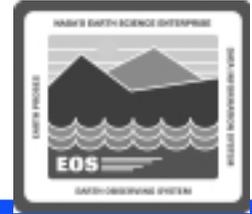
DAR Support (Cont.)



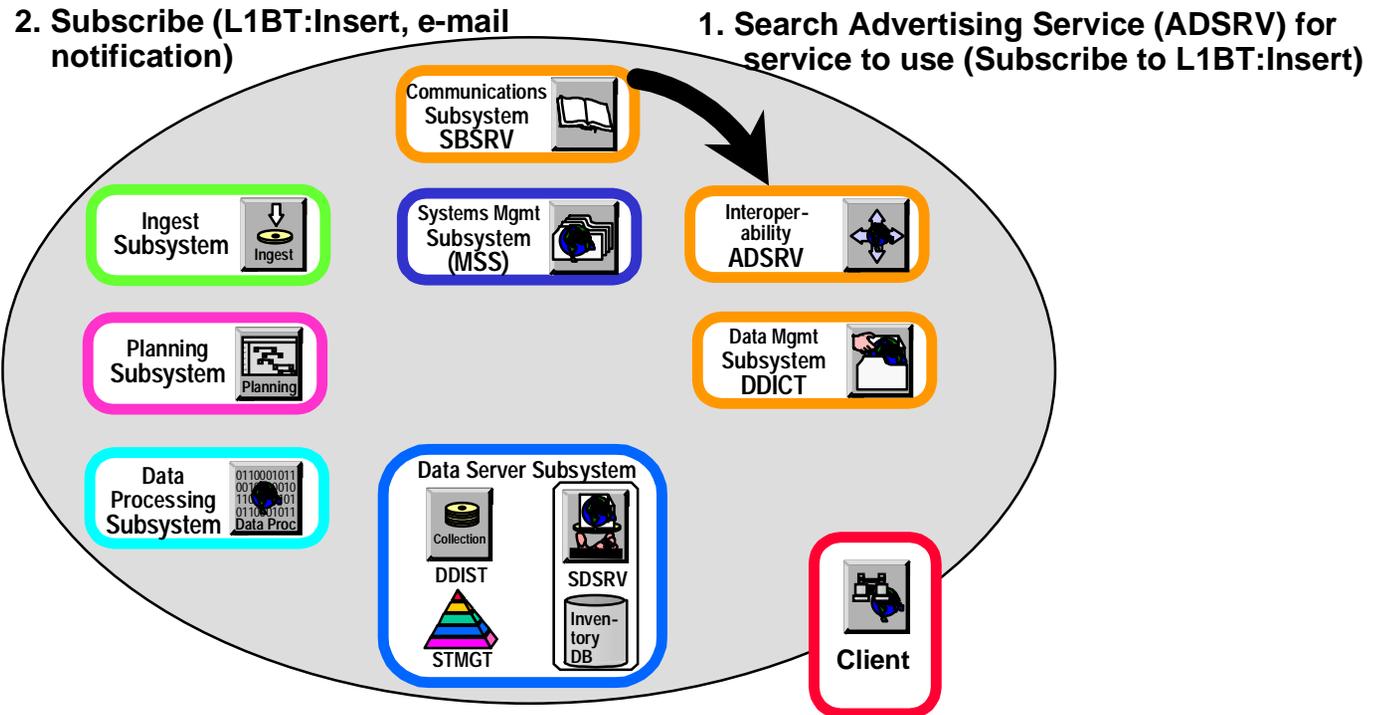
Subscription is submitted on behalf of user for notification on receipt of AST_L1BT (TIR) data



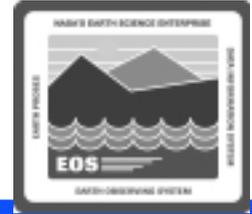
ASTER: Submit Subscription Process



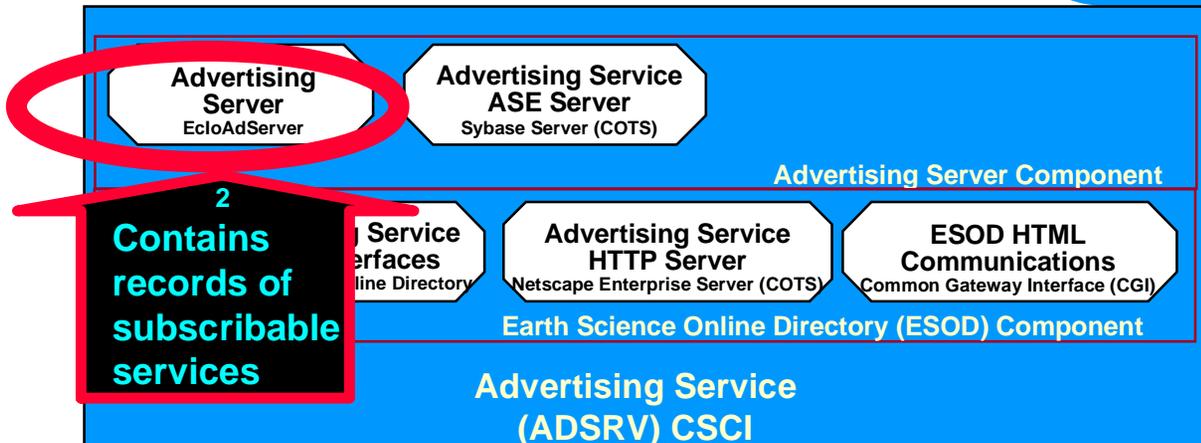
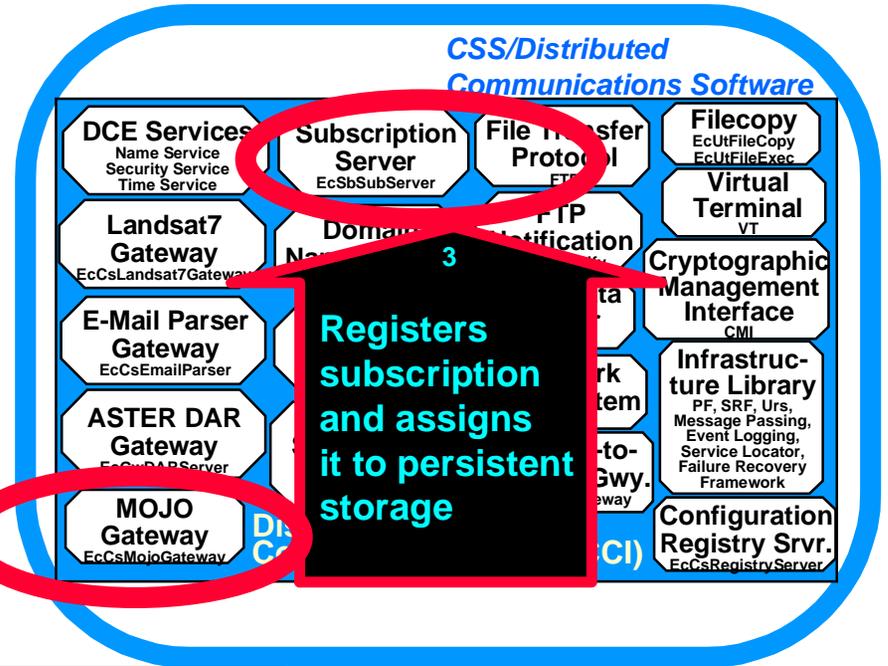
MoJo Gateway submits subscription for notification on the occurrence of AST_L1BT:Insert event, qualified with the DARid.



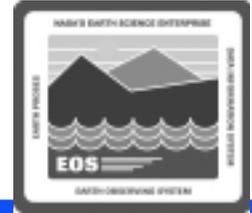
ASTER: CSCI/Component Role in Subscription Submission



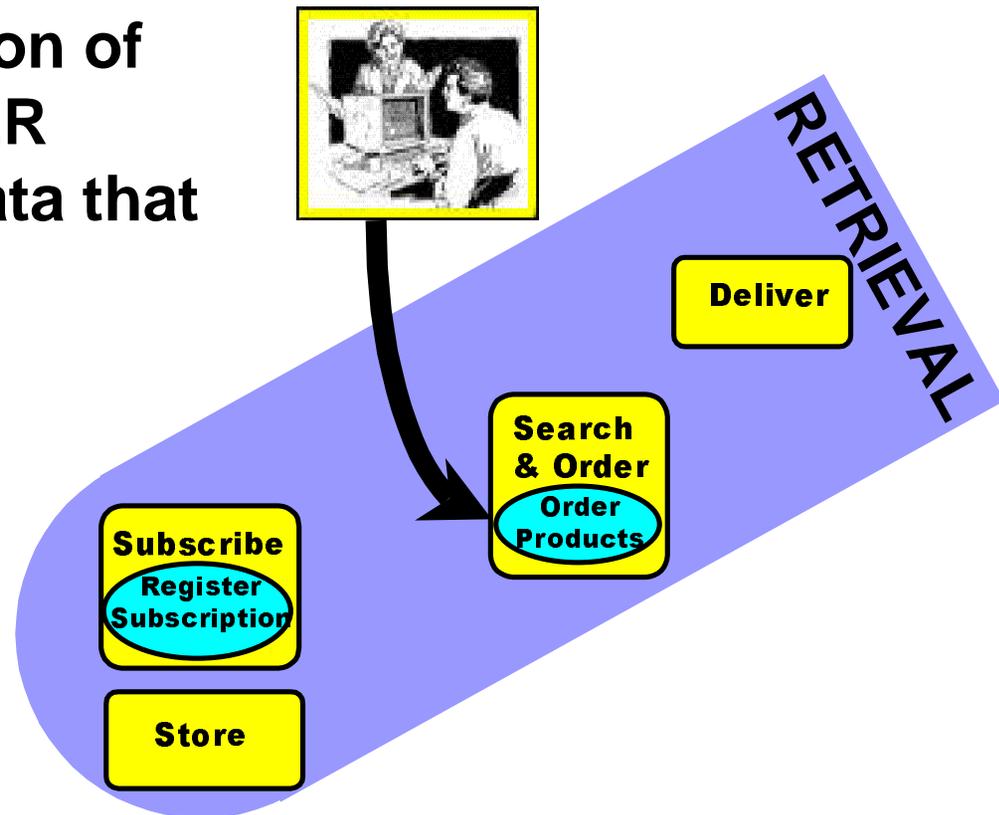
Search A DSRV for service to use (Subscribe to use L1BT:Insert); submit subscription 1



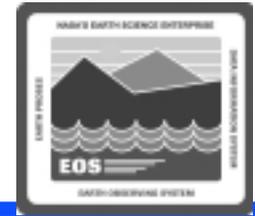
DAR Support (Cont.)



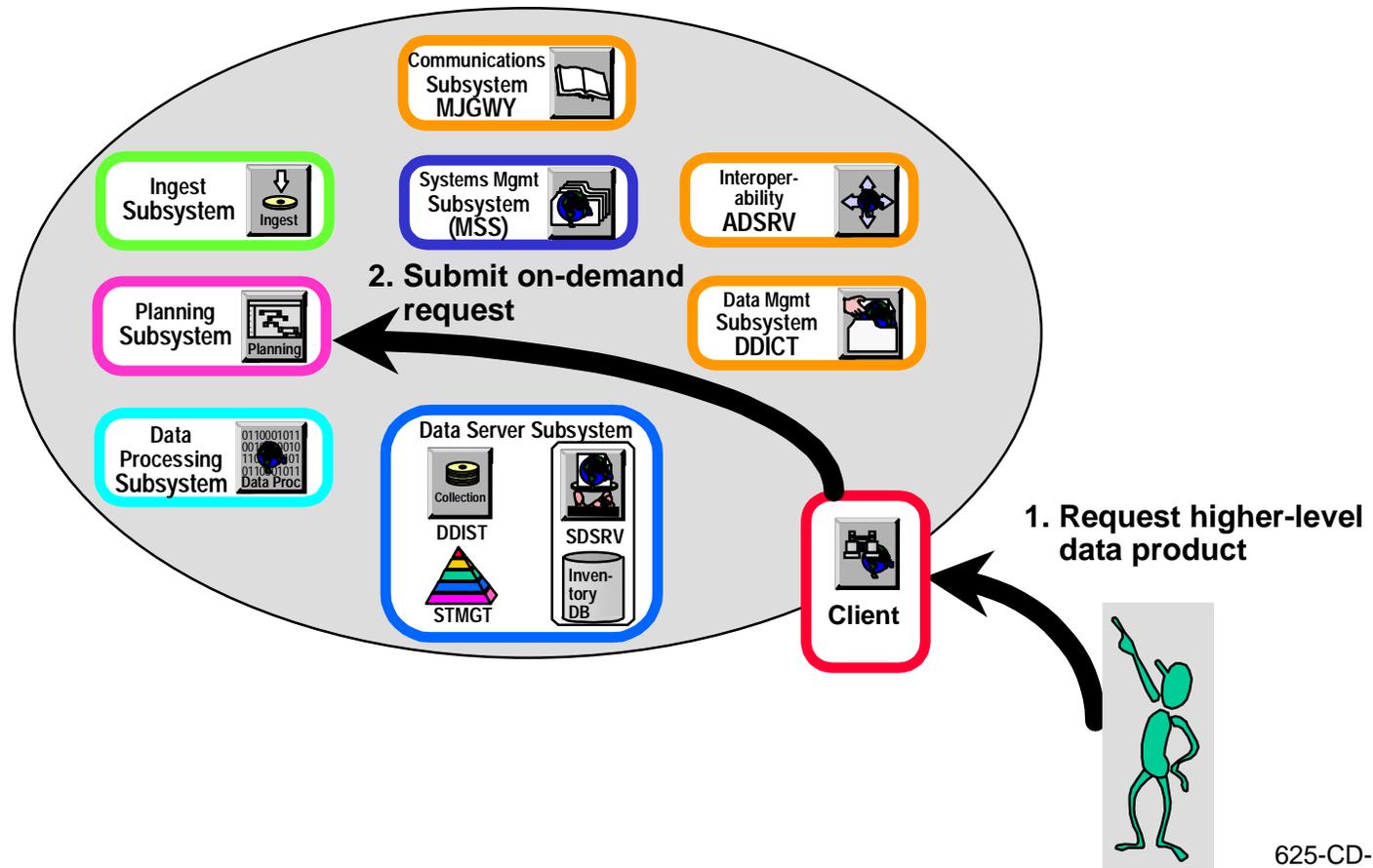
ASTER Scientist decides to request production of a higher level ASTER product from the data that are to be collected



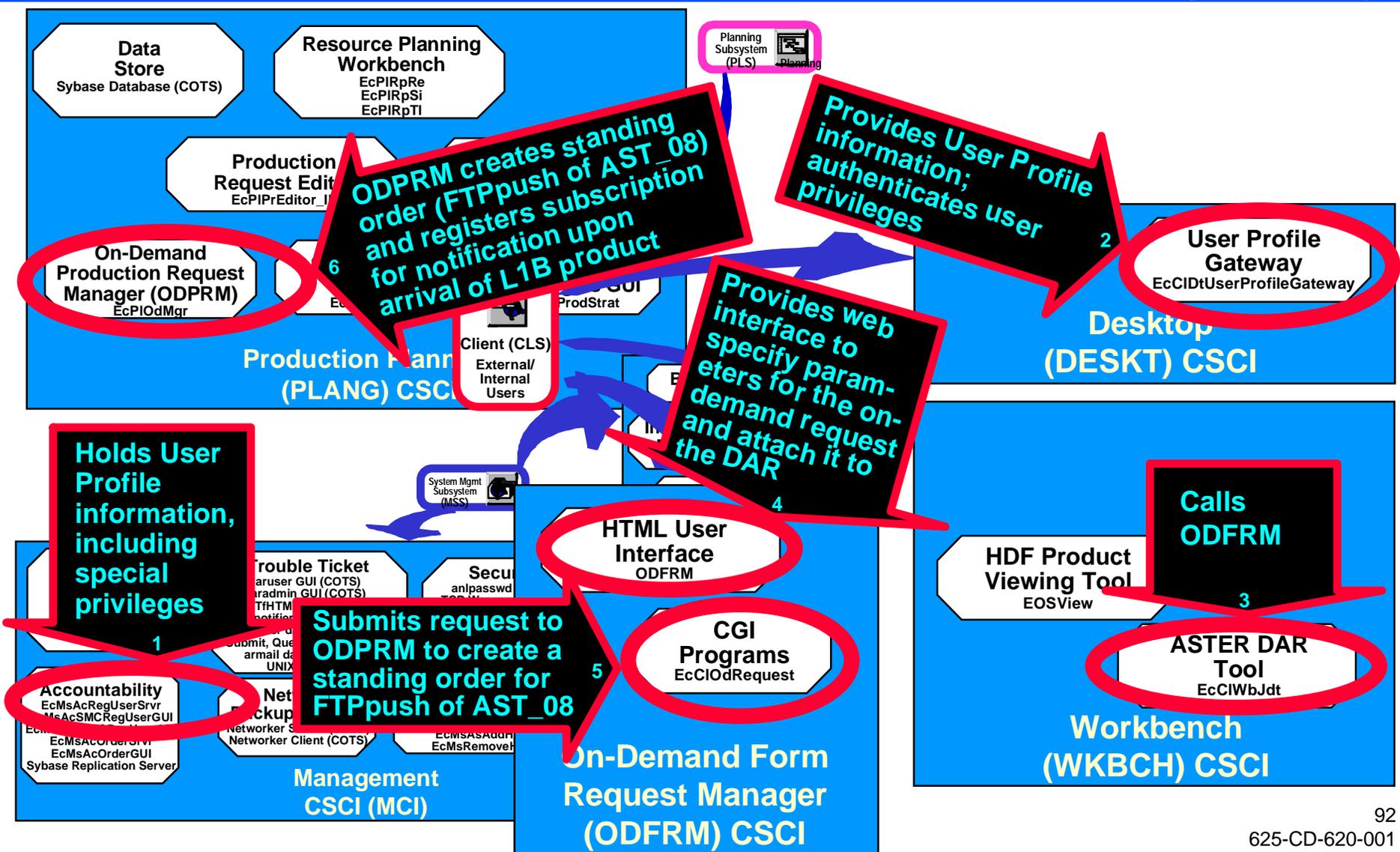
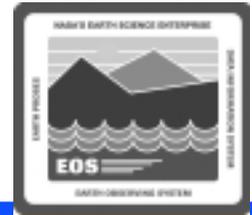
ASTER: Attached On-Demand Data Processing Request Process



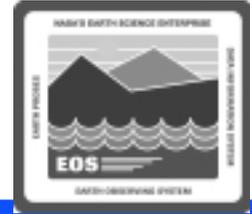
ASTER Scientist wants AST_08 (L2 Surface Temperature product) based on the AST_L1BT (TIR - Thermal InfraRed - product) resulting from GDS initial processing of the data collected for the DAR, and calls the On-Demand Form Request Manager to submit the request.



ASTER: CSCI/Component Role in Attached DPR, On-Demand Request



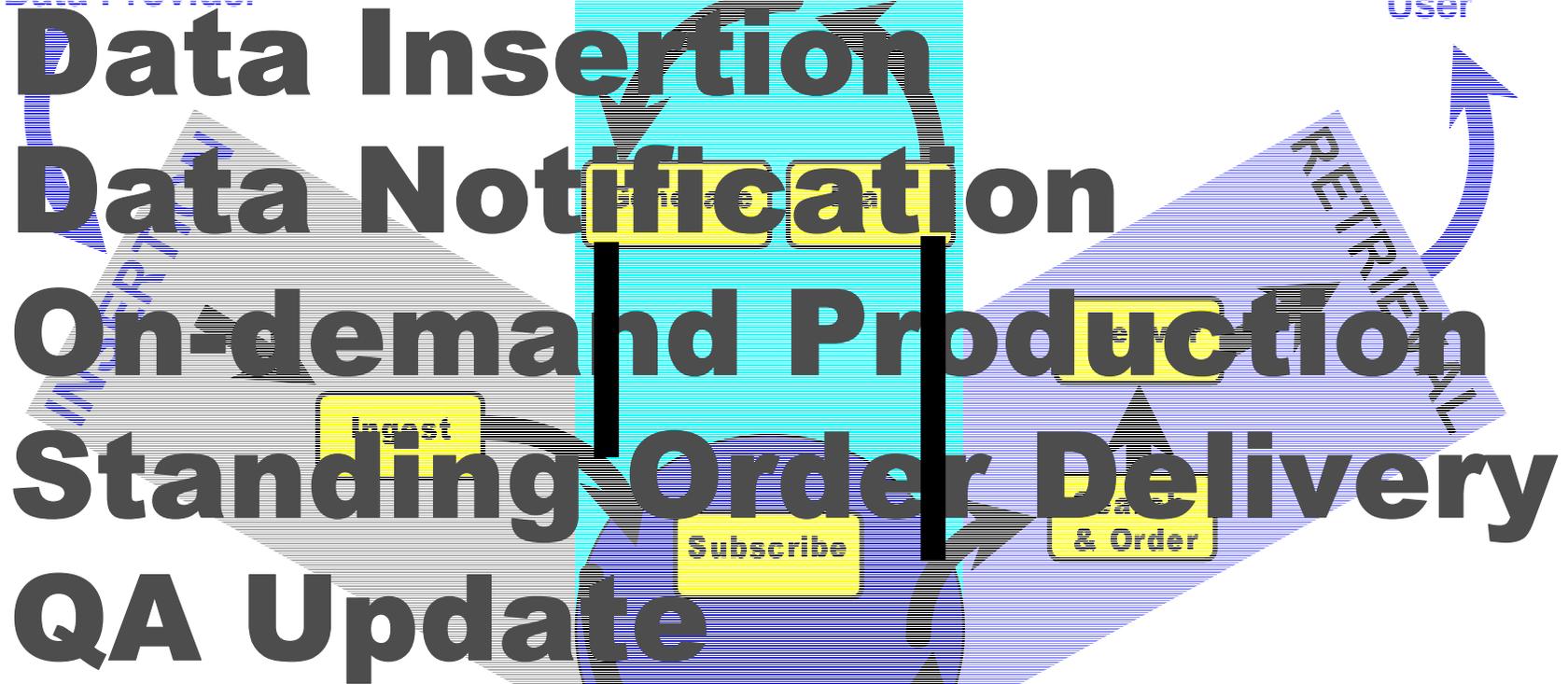
ASTER Scenario: Chaining and On-Demand Production



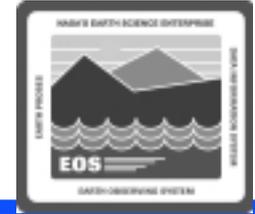
External
Data Provider

PRODUCTION

User

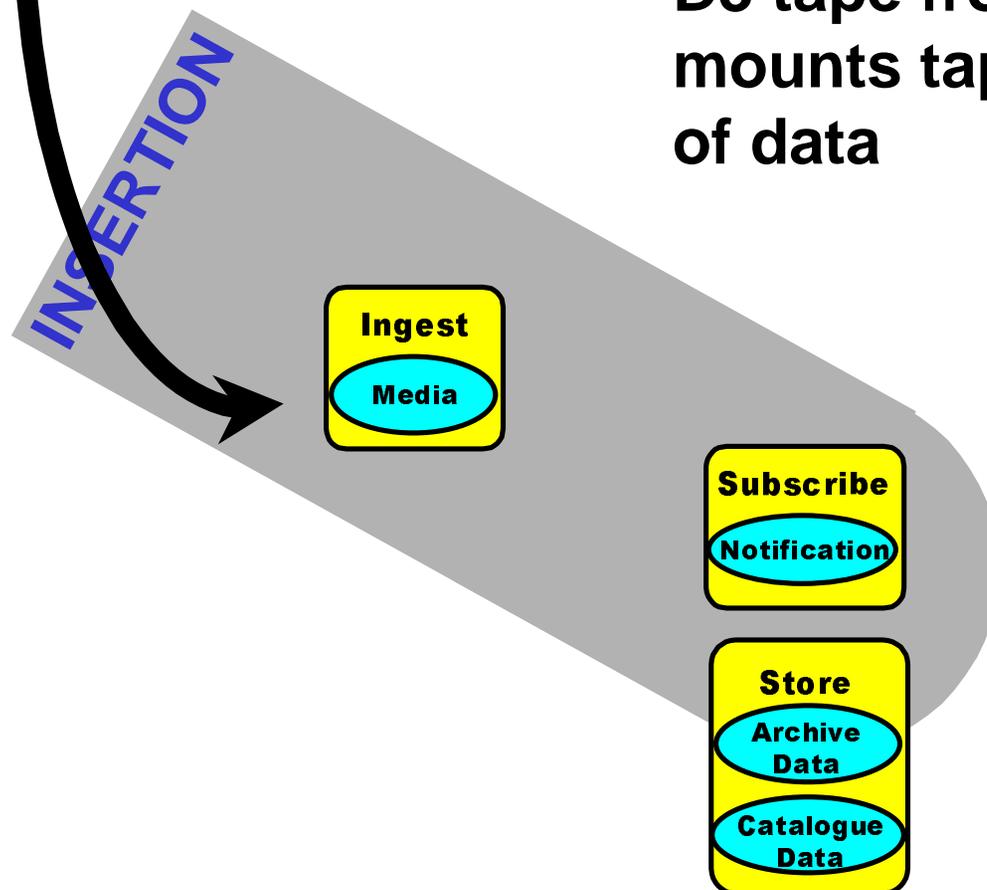


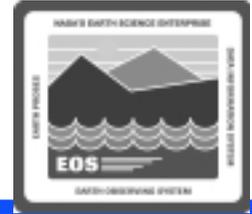
Chaining and On-Demand Production (Cont.)



D3
Tape

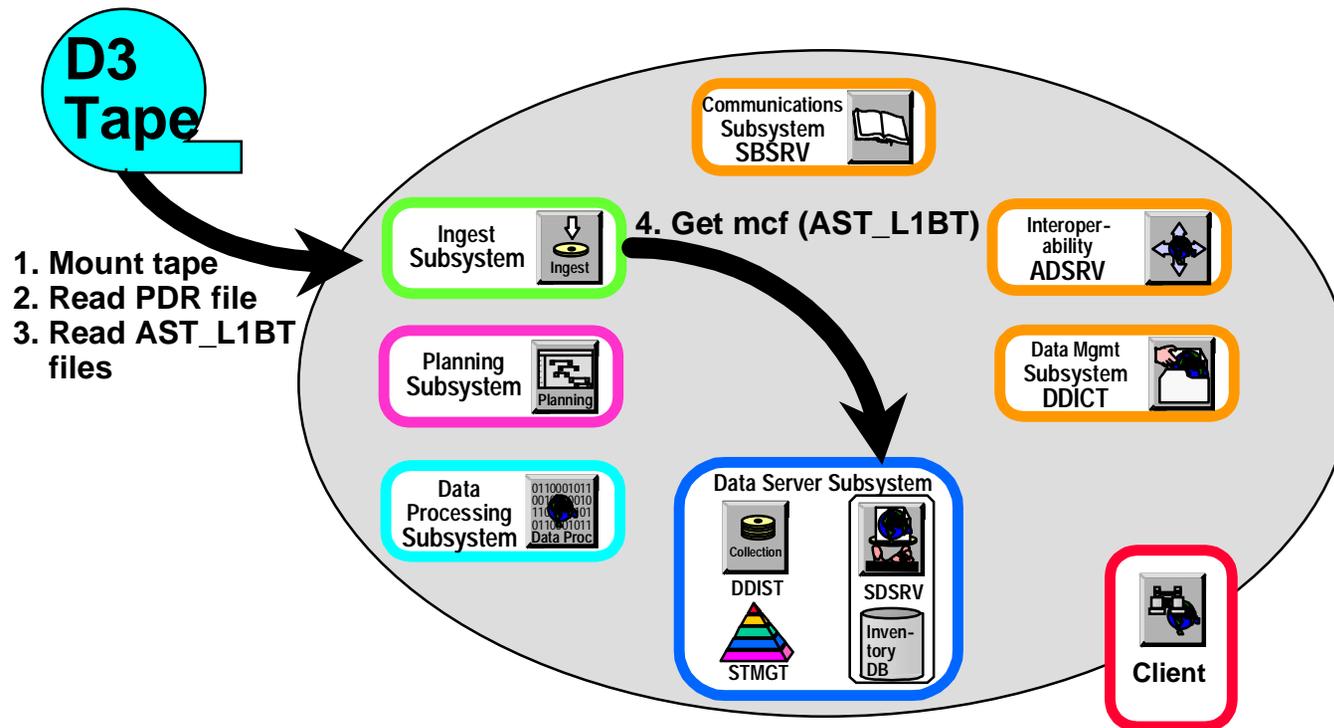
Some time later, after receiving D3 tape from GDS, operator mounts tape and begins ingest of data



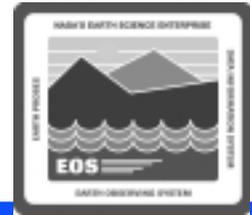


ASTER: D3 Tape Ingest Process

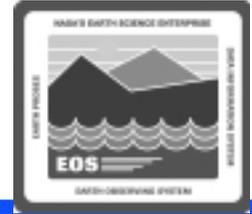
After receiving D3 tape in a shipment, DAAC Operator mounts tape and begins ingest activities. Tape contains AST_L1BT (L1B TIR) data.



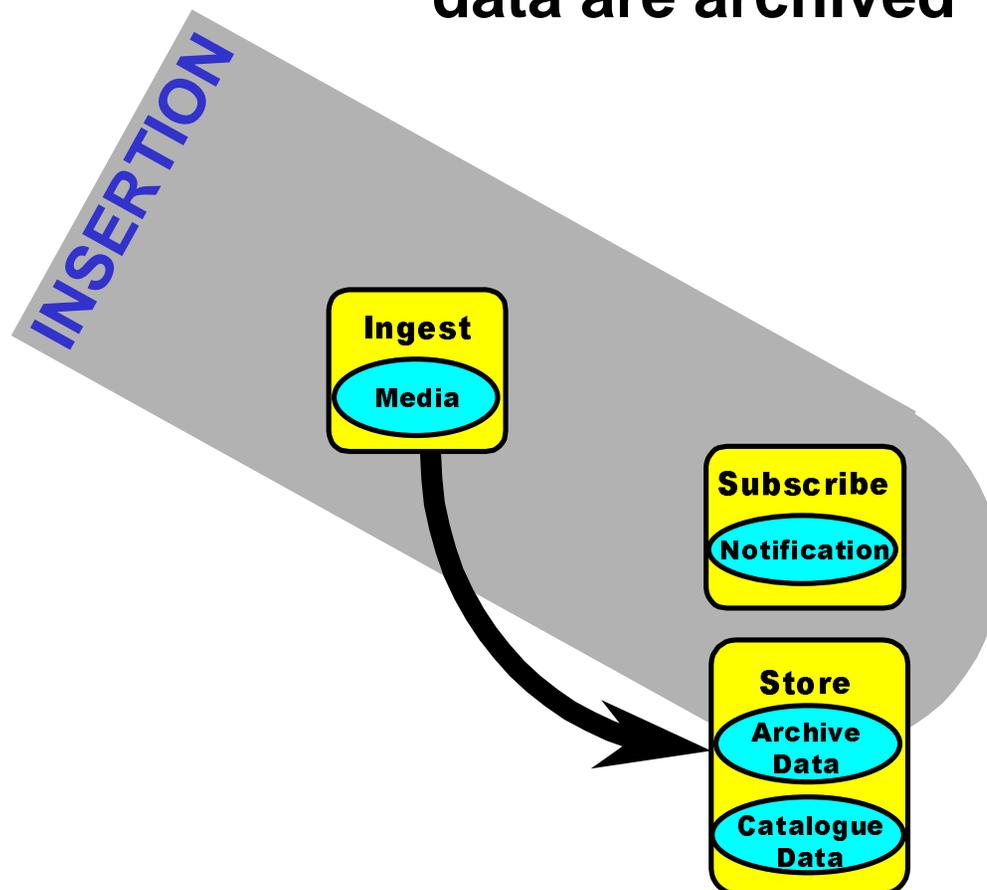
ASTER: CSCI/Component Role in Ingest D3 Tape Operations



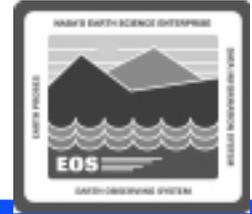
Chaining and On-Demand Production (Cont.)



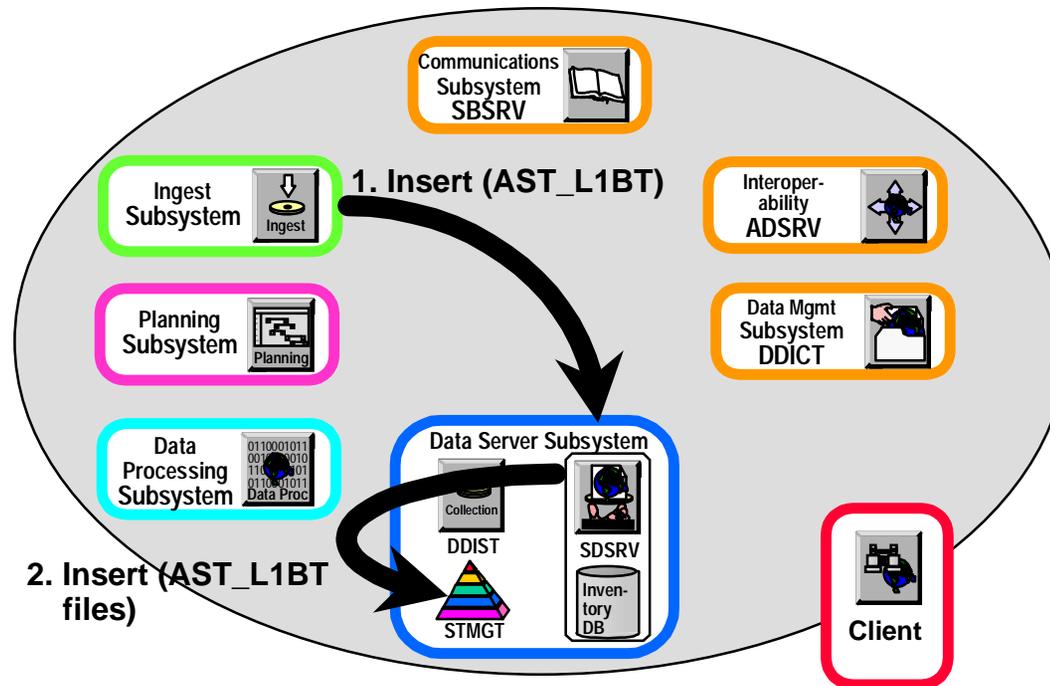
Ingested AST_L1BT data are archived



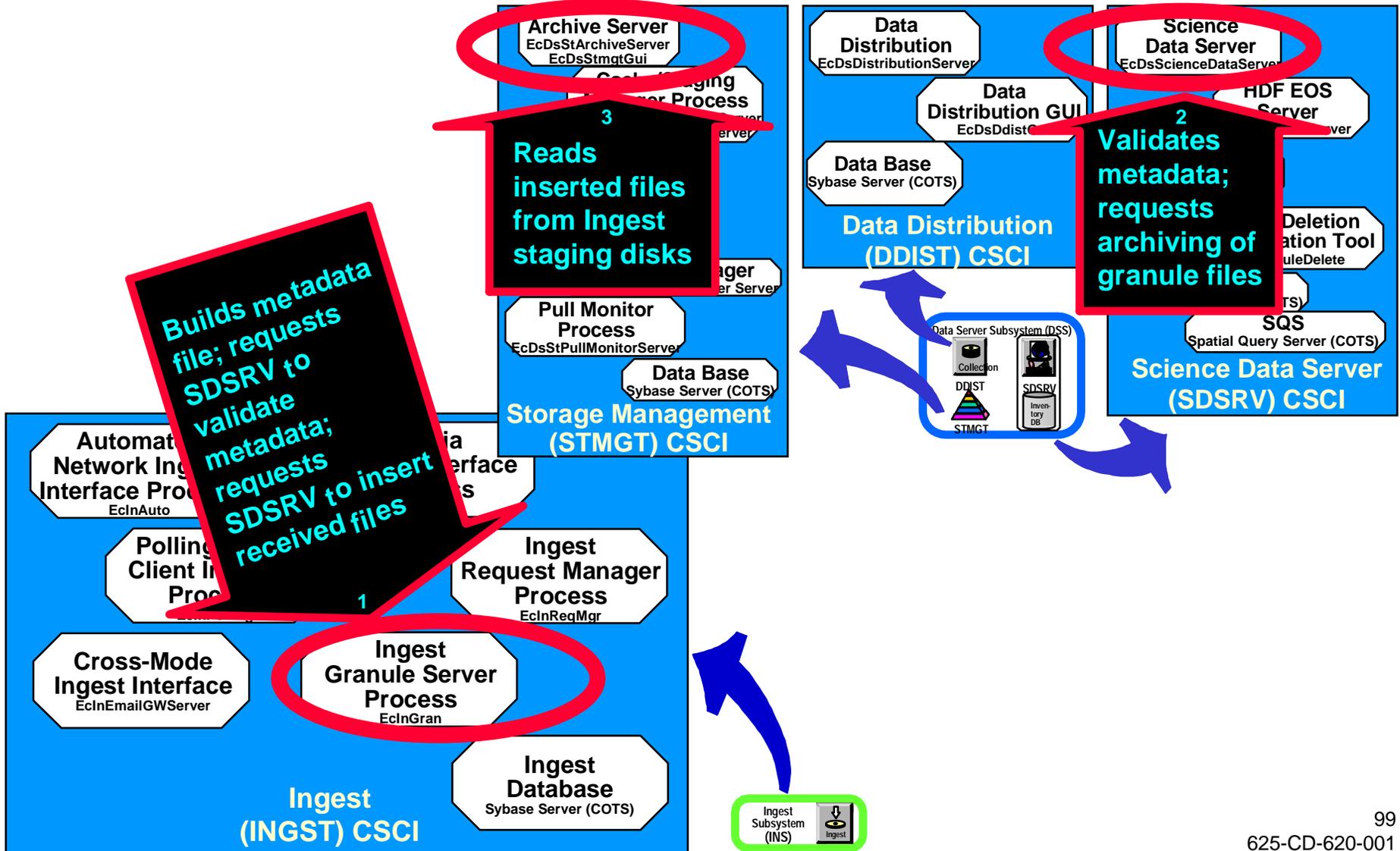
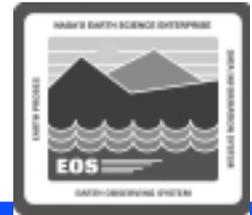
ASTER: Ingest Archive Insertion Process



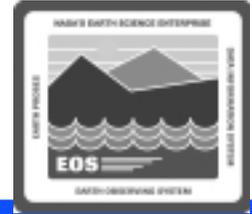
Archive AST_L1BT (L1B TIR) data granules.



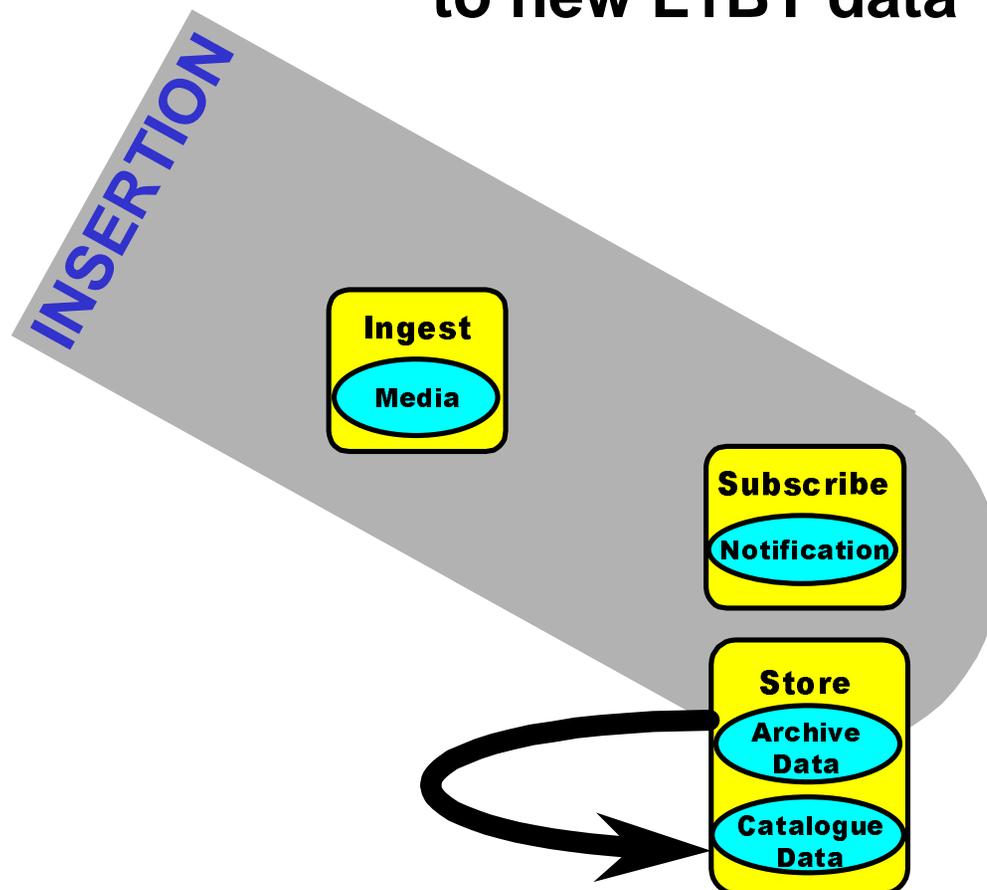
ASTER: CSCI/Component Role in Ingest Archive Insertion



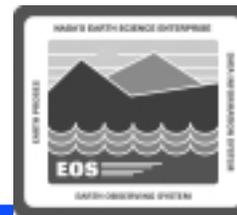
Chaining and On-Demand Production (Cont.)



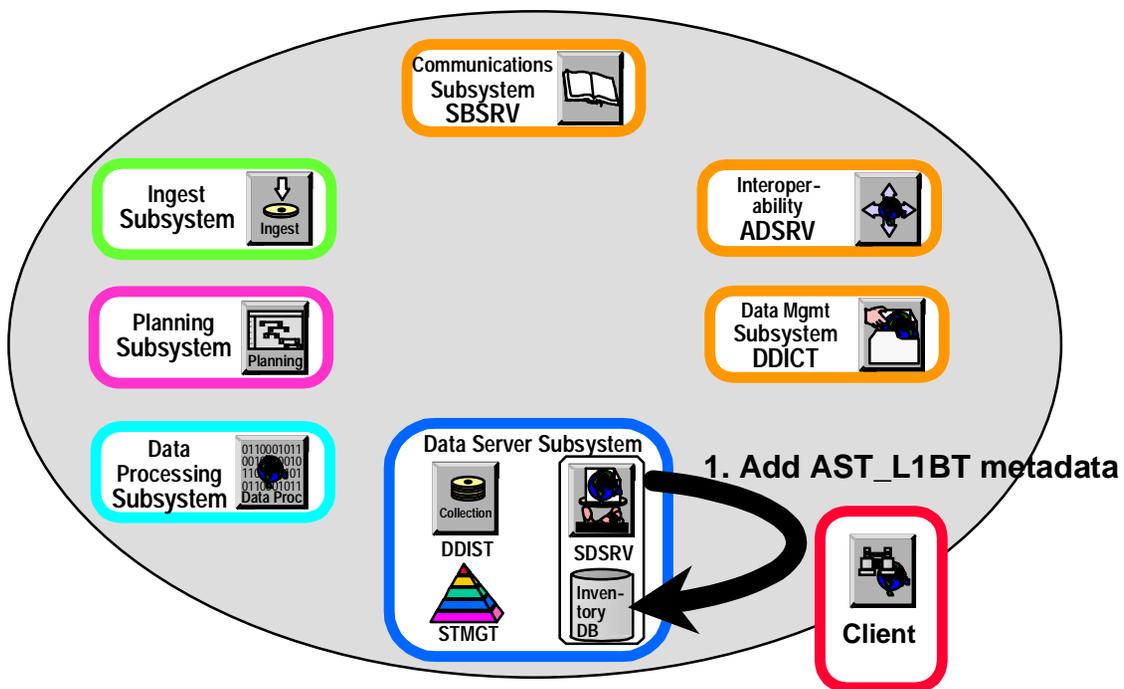
Update catalogue with reference to new L1BT data



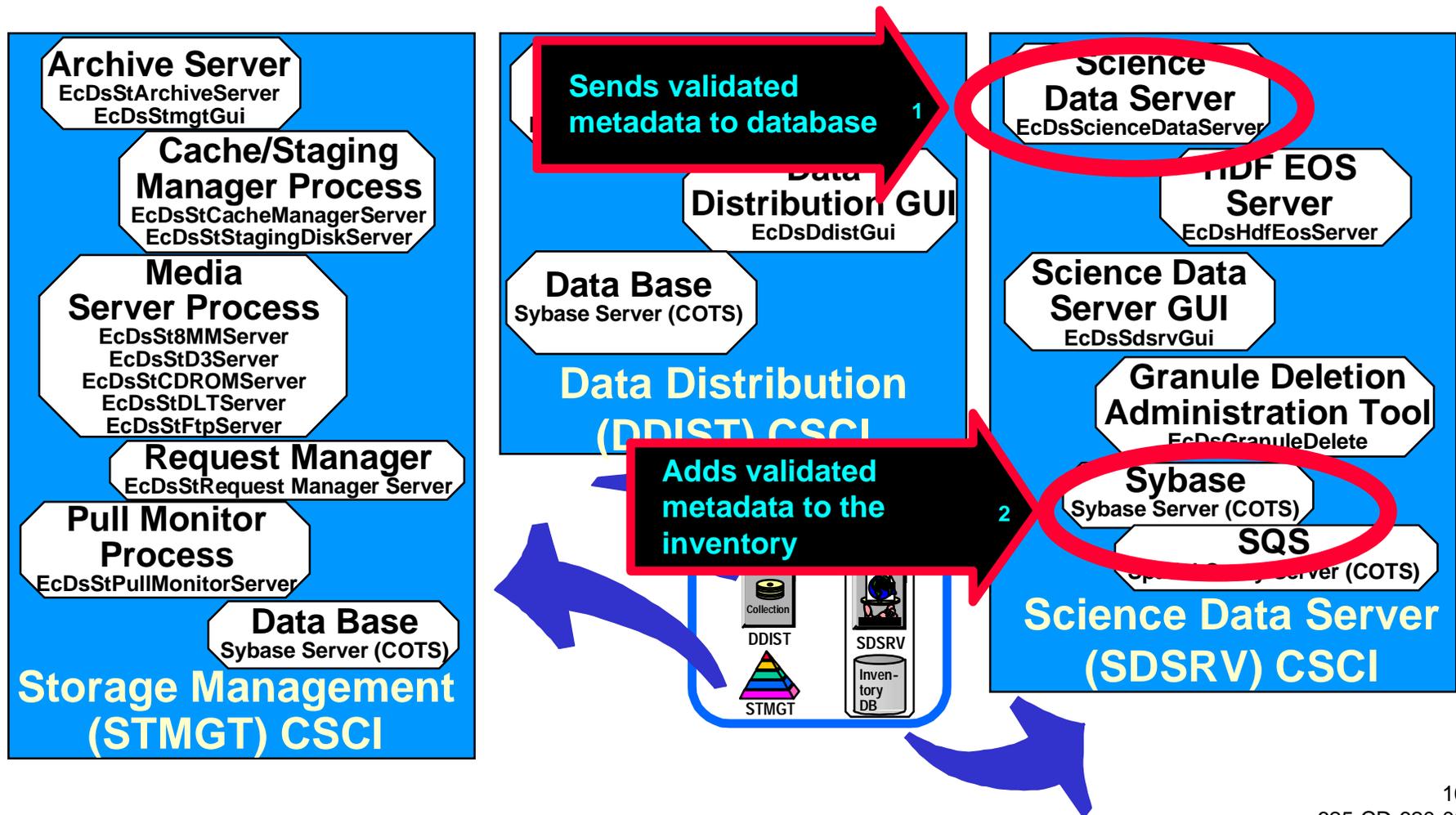
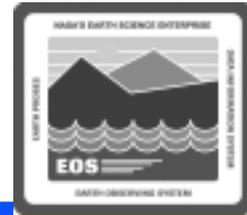
ASTER: Inventory (Metadata) Update Process



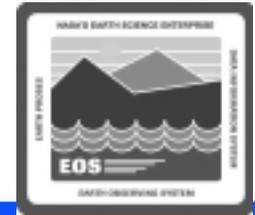
Add metadata for AST_L1BT (L1B TIR) data granules to the Sybase/SQS database.



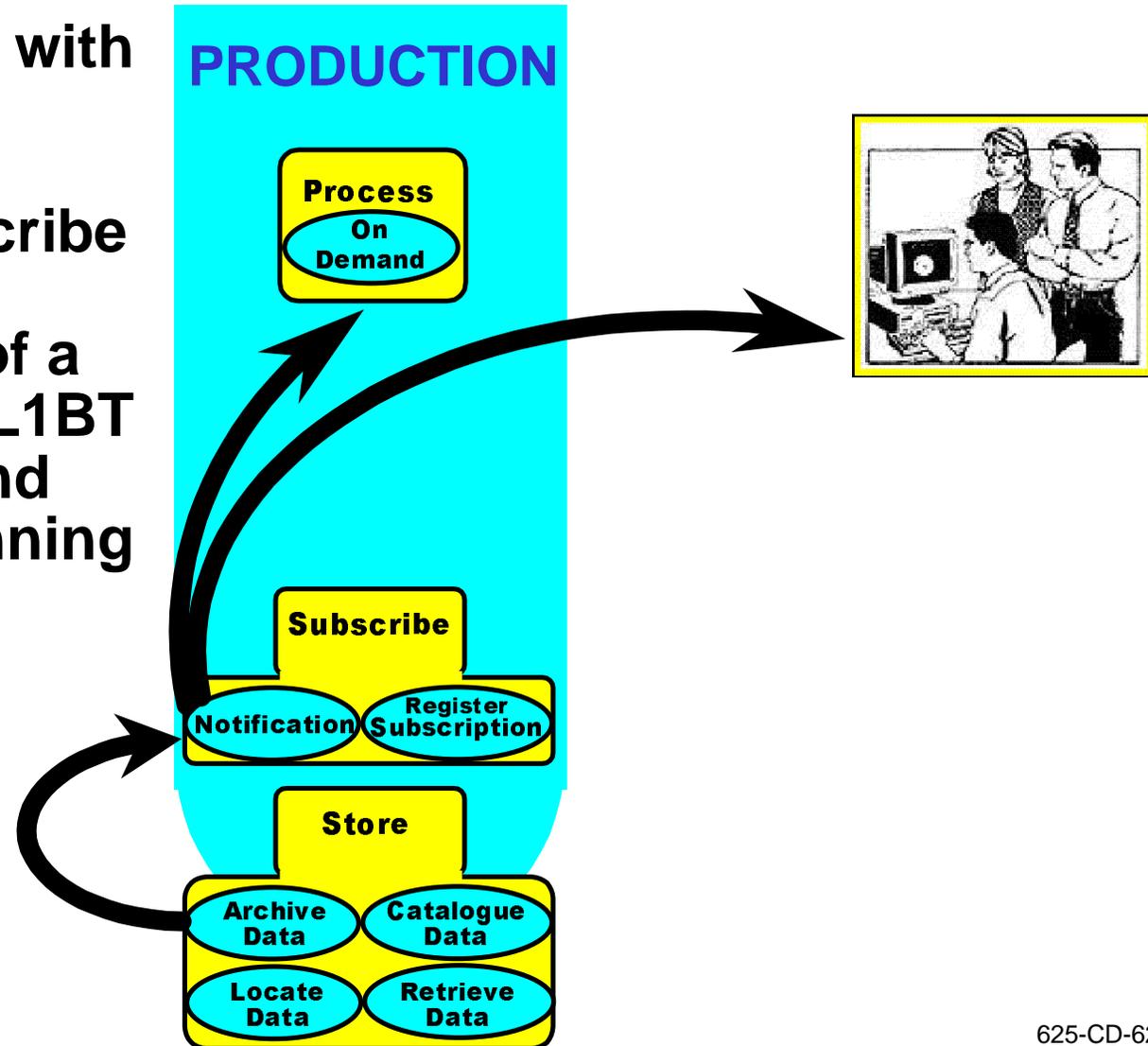
ASTER: CSCI/Component Role in Inventory (Metadata) Update



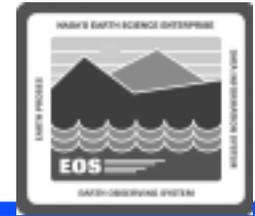
Chaining and On-Demand Production (Cont.)



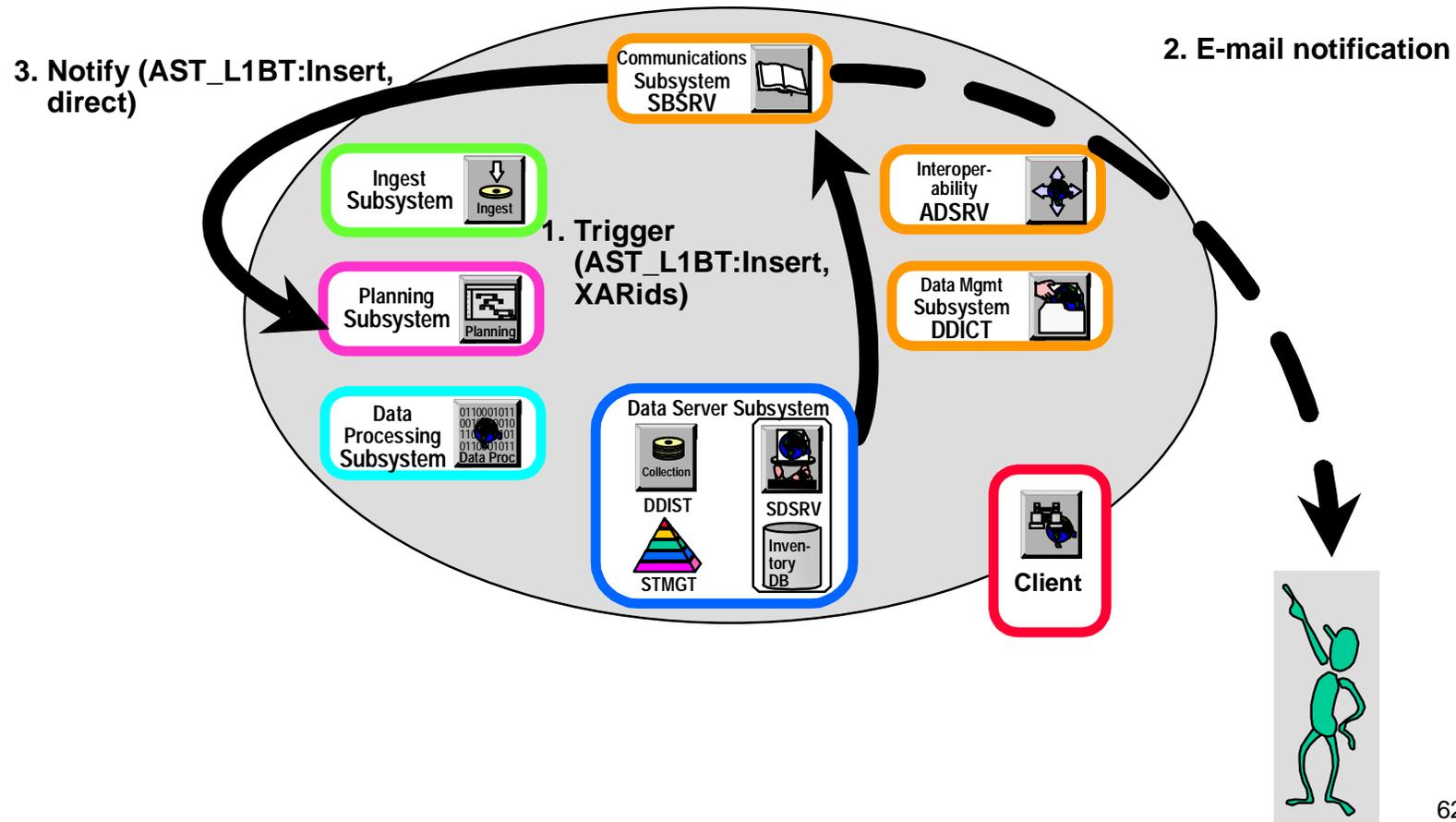
Insert terminates with an insert event notification to **Subscribe**. **Subscribe** e-mails **ASTER** Scientist notice of a completed **AST_L1BT** granule insert, and also notifies **Planning**



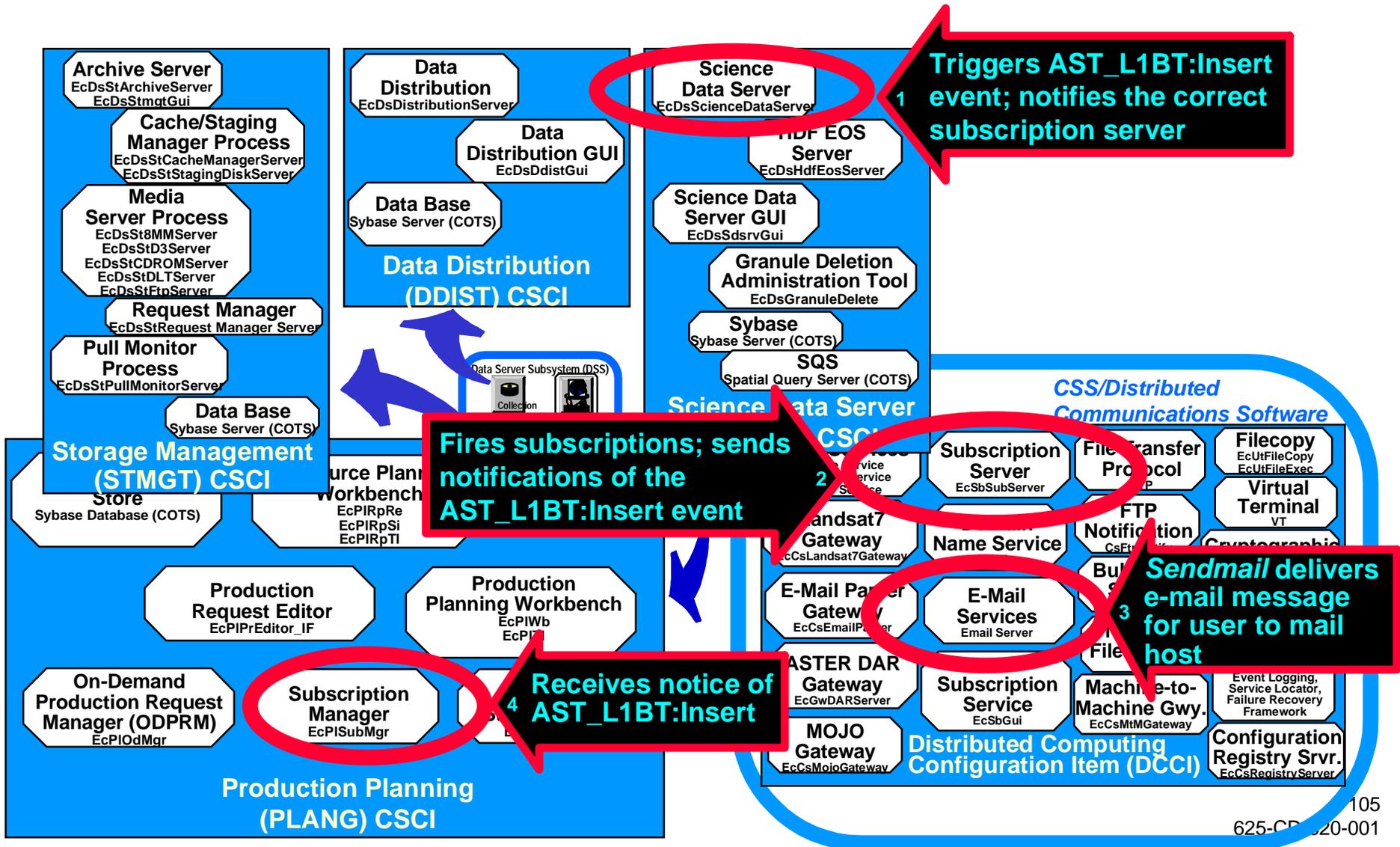
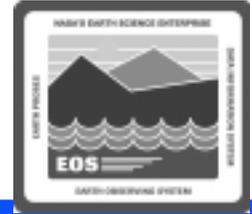
ASTER: Event Notification Process



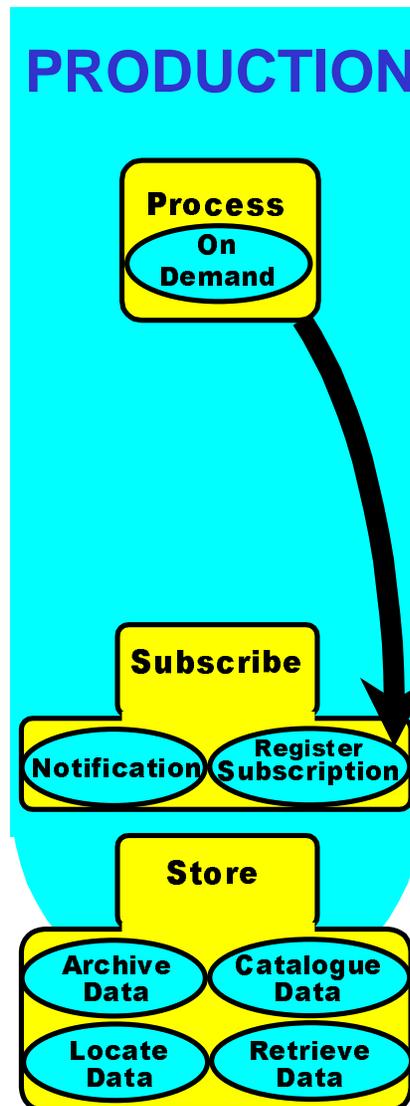
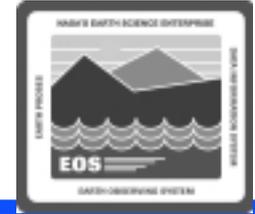
Notify all AST_L1BT:Insert event subscribers whose DARid numbers are matched with the ingested granules.



ASTER: CSCI/Component Role in Event Notification

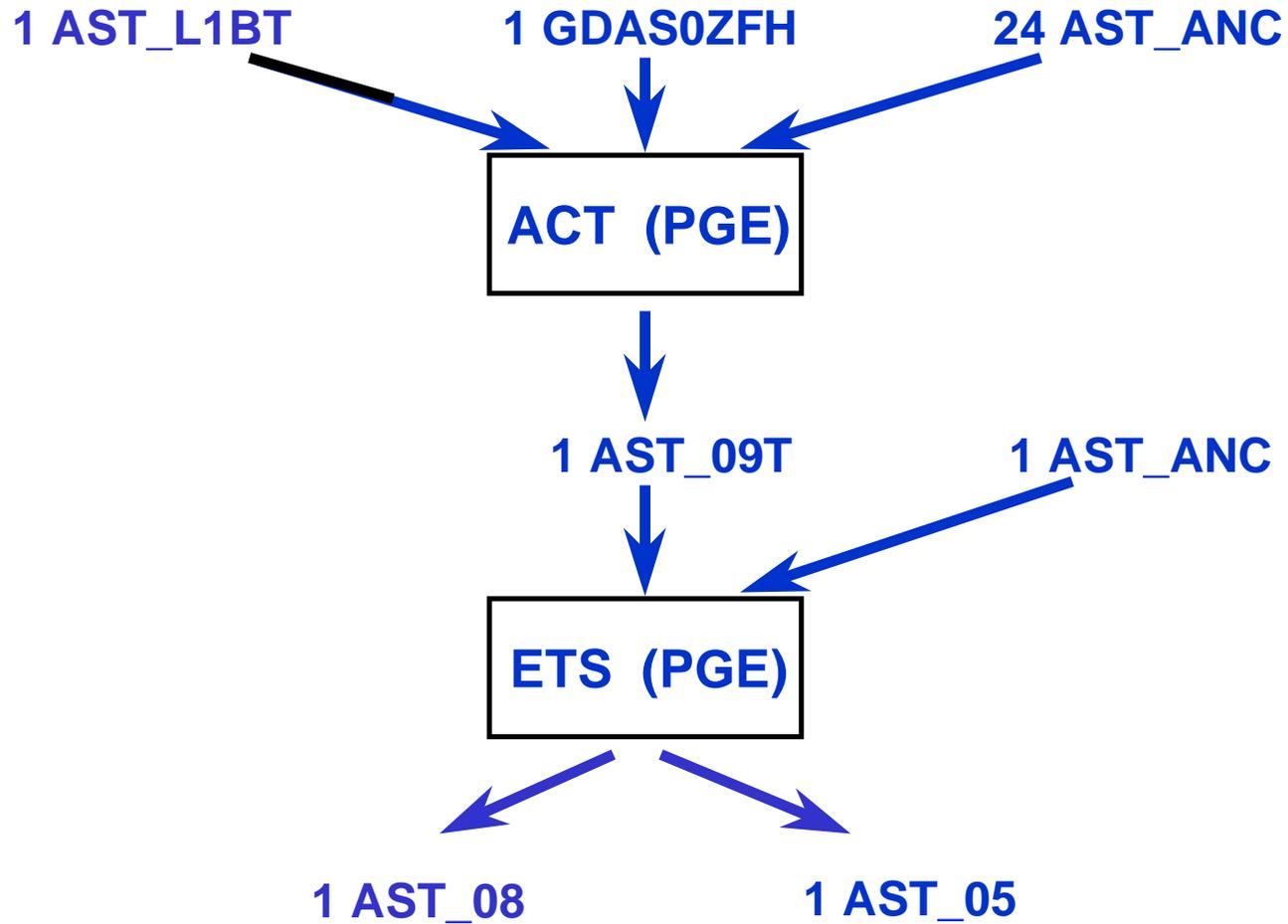
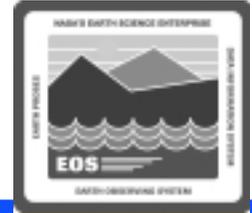


Chaining and On-Demand Production (Cont.)

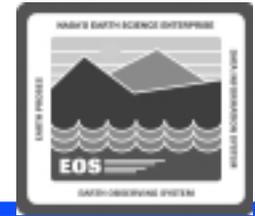


Planning recognizes the need to run ACT PGE before ETS. Creates data processing requests (DPRs) for ACT and ETS, and registers subscriptions for input products that are not available in the archive.

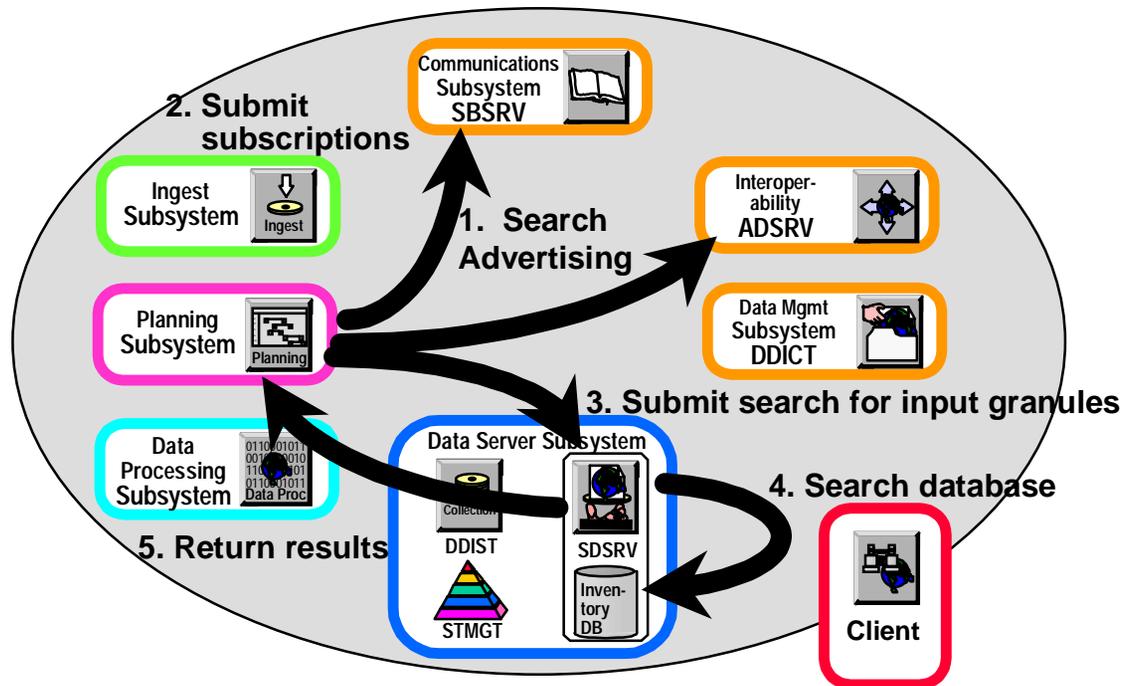
ASTER: PGE Chaining



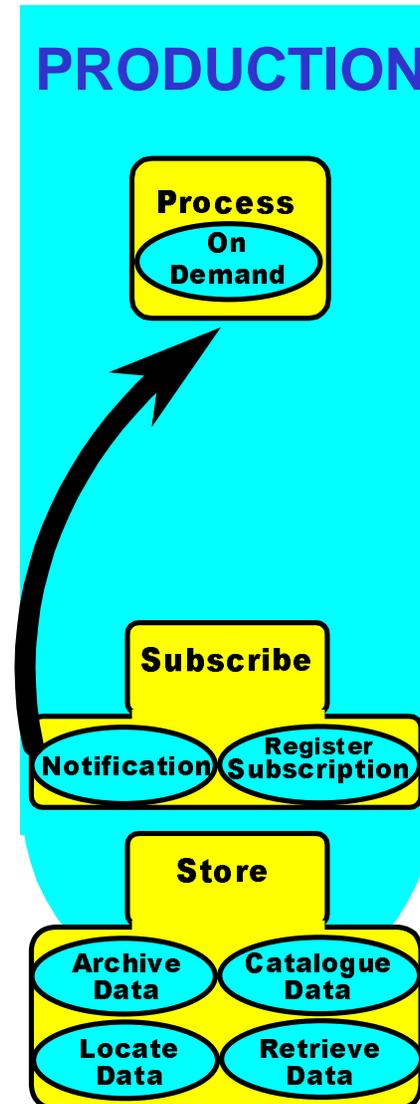
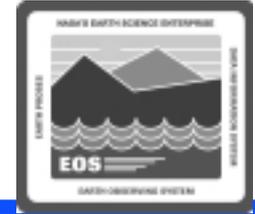
ASTER: Sequenced Production Request Process



Planning recognizes that, in order to run ETS algorithm on AST_L1BT (L1B TIR), ACT algorithm must be run first. Planning creates DPRs for ACT and ETS, with the AST_09T (L2 Surface Radiance TIR) output feeding the ETS algorithm, submitting subscriptions for data not available in the archive.

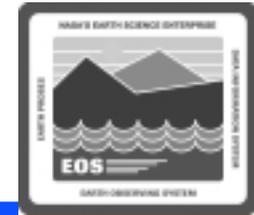


Chaining and On-Demand Production (Cont.)

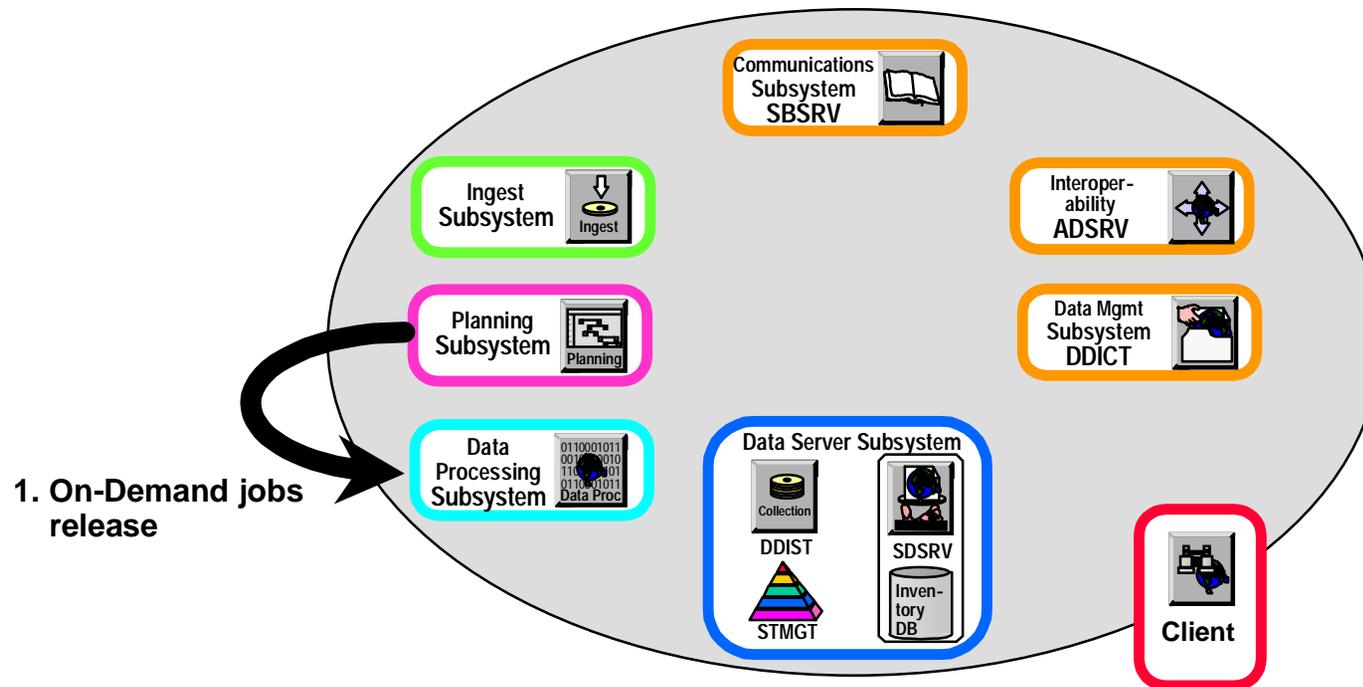


Planning releases the On-Demand jobs, including the DPR for ACT and a dependent one for ETS

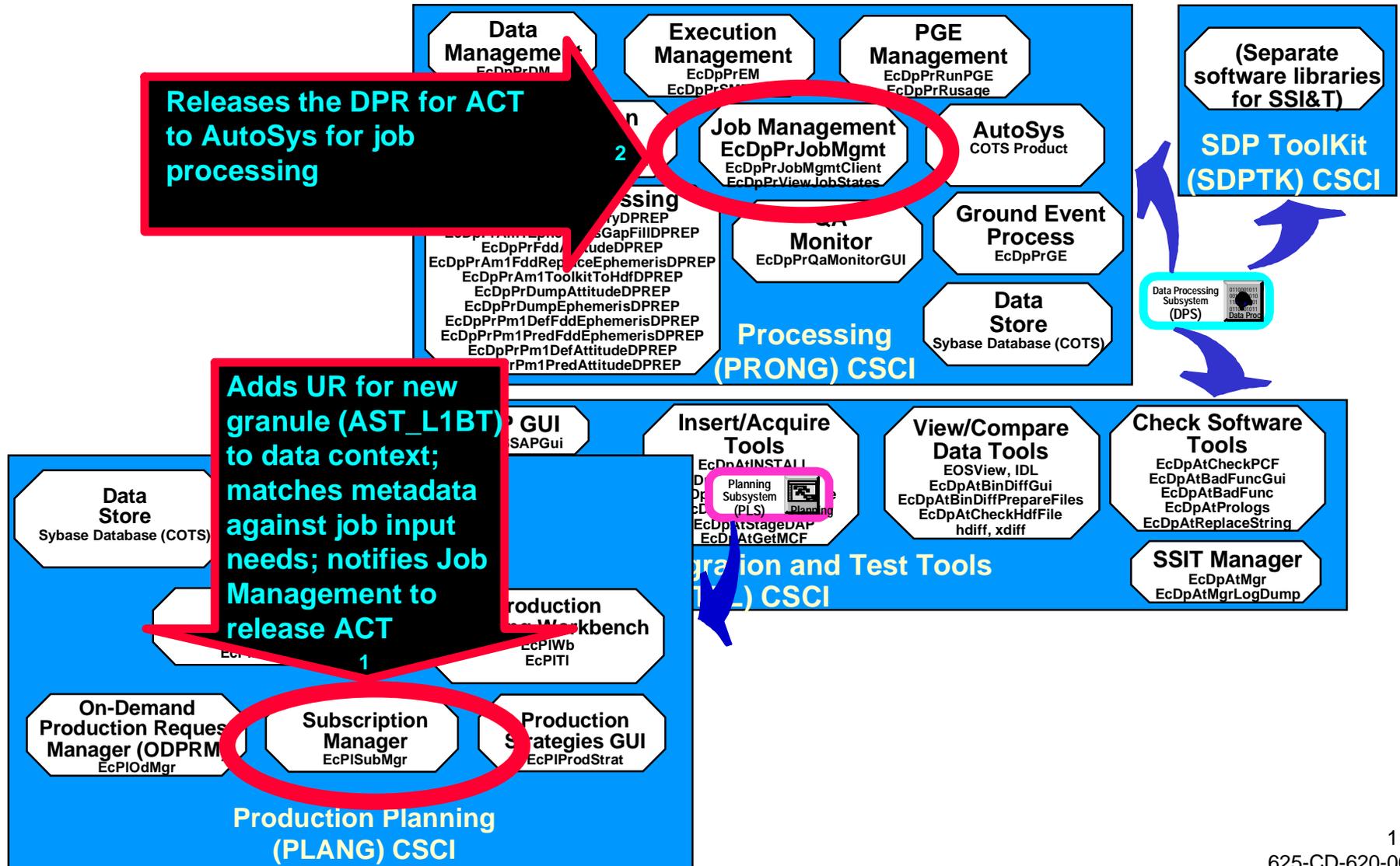
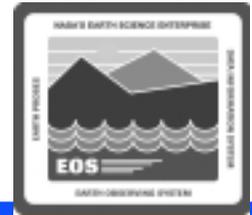
ASTER: Job Activation Process



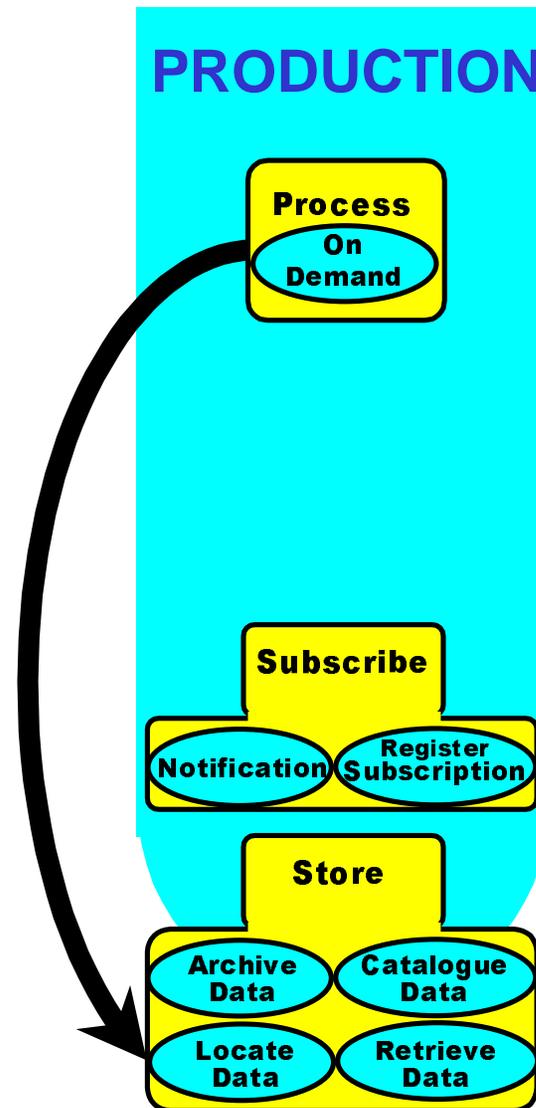
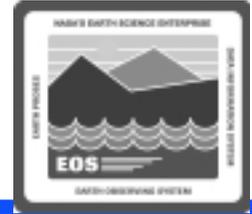
Planning releases the On-Demand jobs; the release activates the ACT DPR for processing.



ASTER: CSCI/Component Role in Job Activation

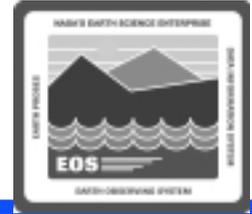


Chaining and On-Demand Production (Cont.)

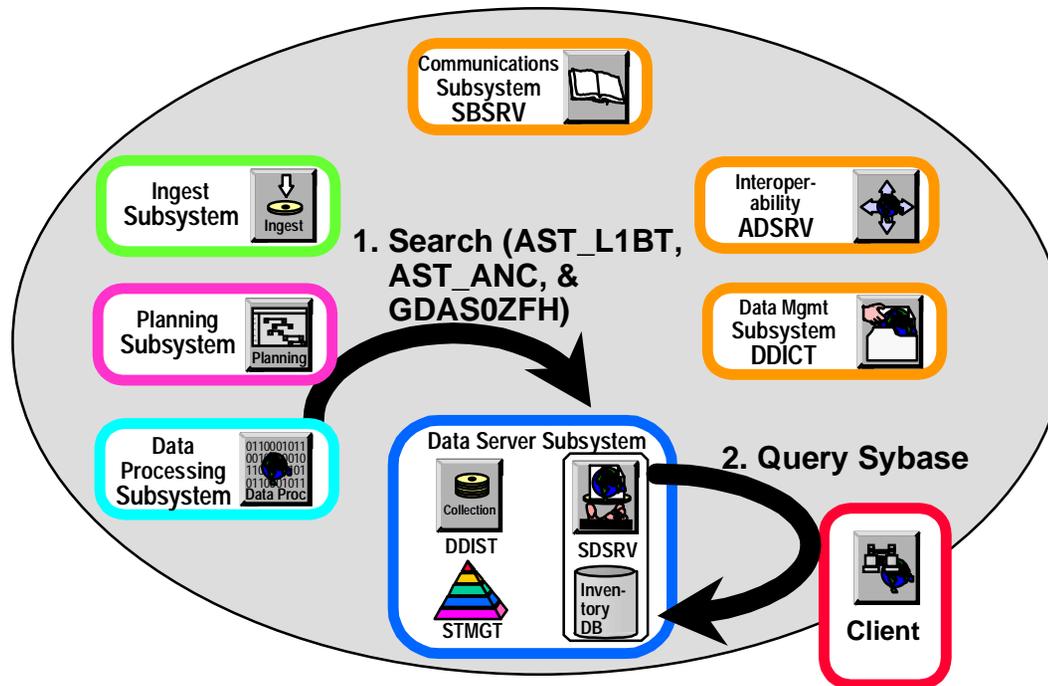


Job locates
AST_L1B,
AST_ANC
(ASTER ancillary
data set), and
GDAS0ZFH
(NCEP ancillary)
data required for
ACT algorithm

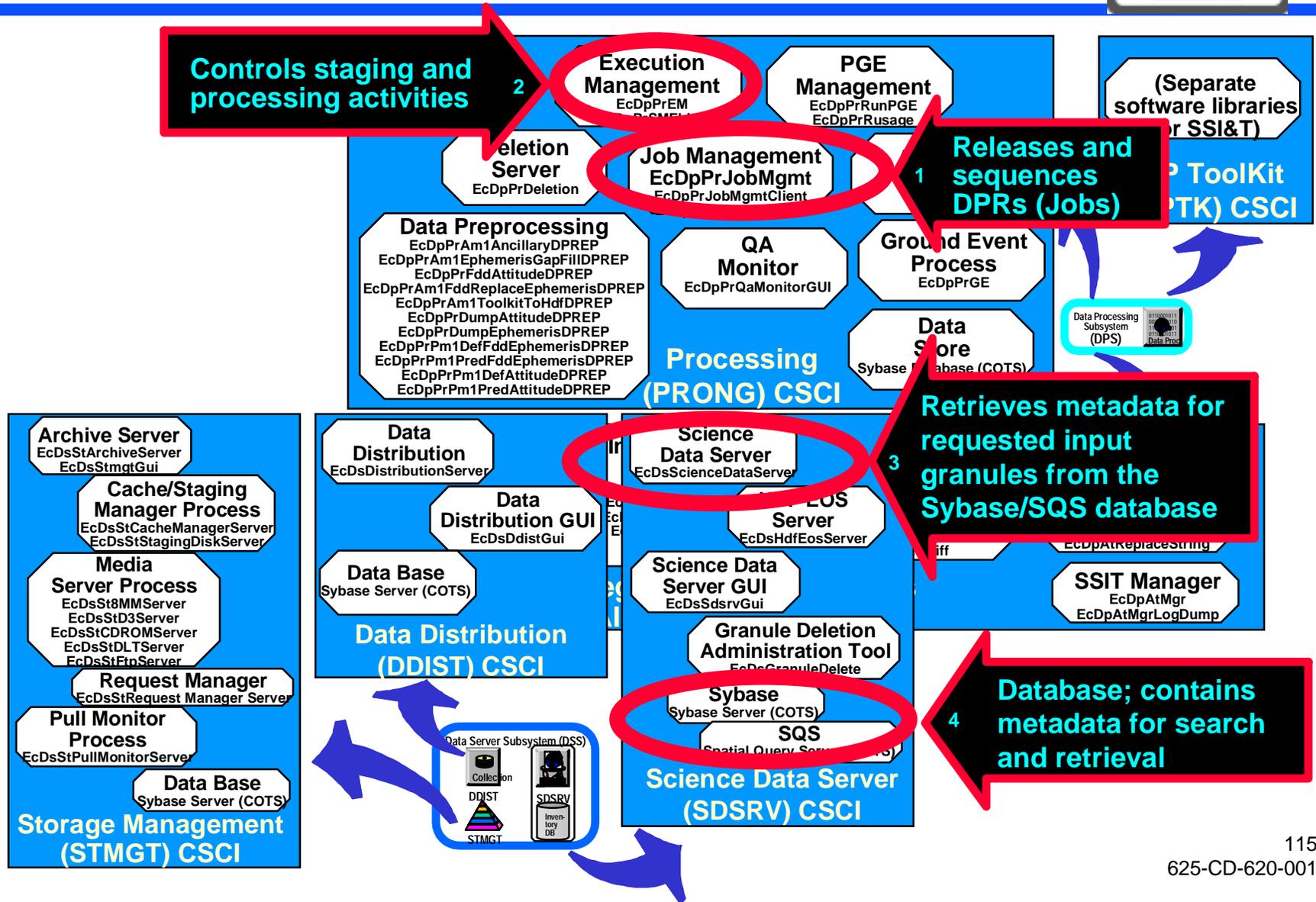
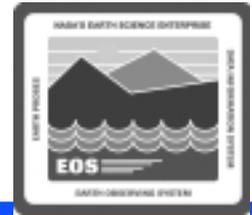
ASTER: Input Data Location Process



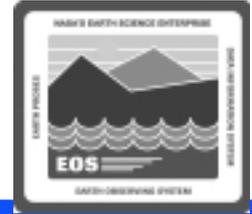
ACT locates required AST_L1BT (L1B TIR), AST_ANC (ASTER ancillary data set), and GDAS0ZFH (NCEP ancillary) input data granule.



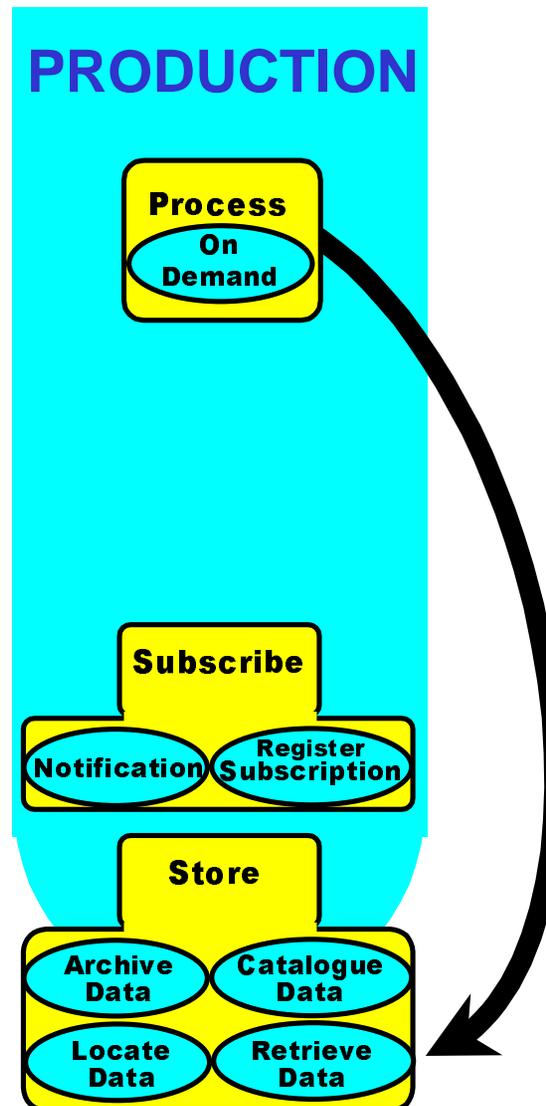
ASTER: CSCI/Component Role in Input Data Location



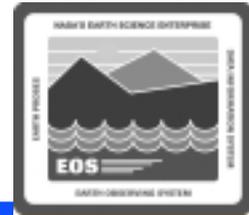
Chaining and On-Demand Production (Cont.)



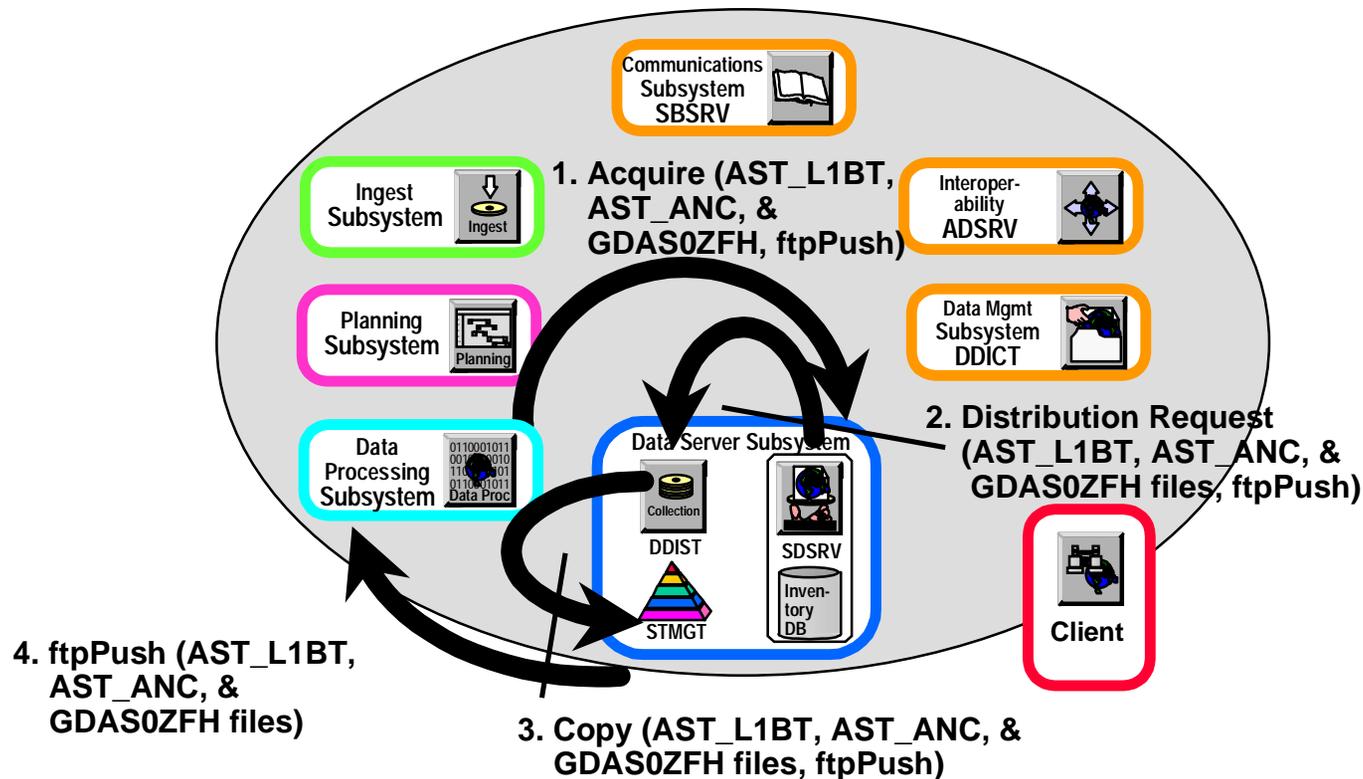
Retrieve
AST_L1B,
AST_ANC
(ASTER ancillary
data set), and
GDAS0ZFH
granules as input
to ACT; PGE
execution begins



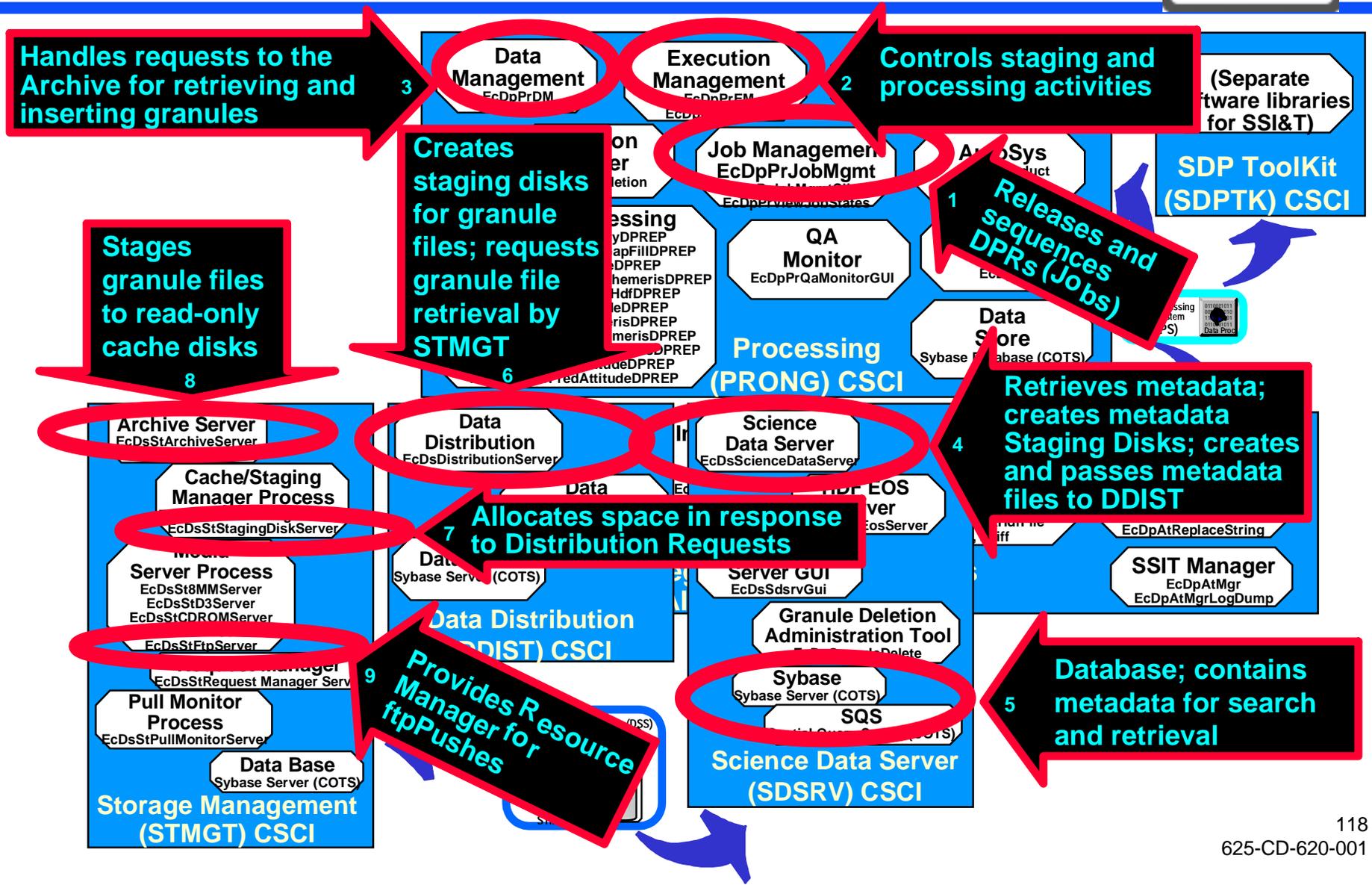
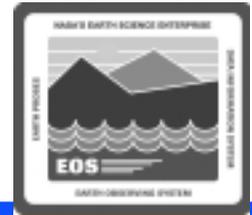
ASTER: Job Staging Process



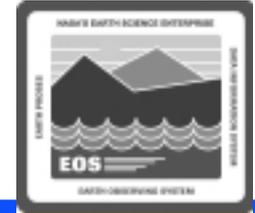
ACT production job retrieves required AST_L1BT (L1B TIR), AST_ANC (ASTER ancillary data set), and GDAS0ZFH (NCEP ancillary) input data granules.



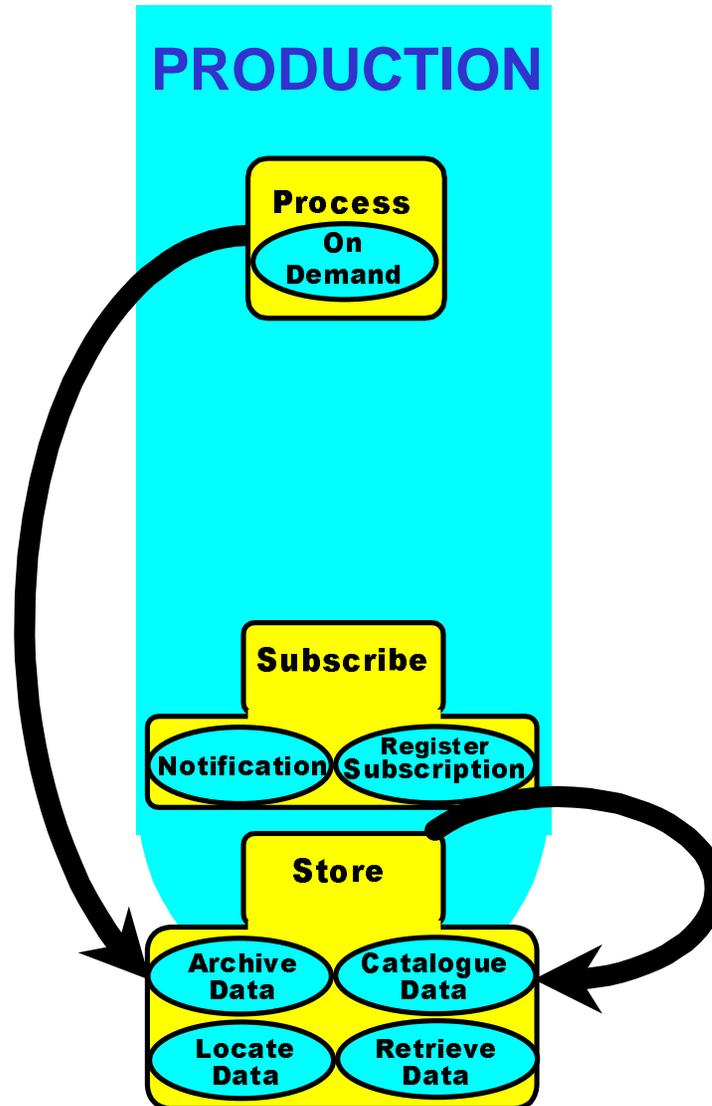
ASTER: CSCI/Component Role in Job Staging



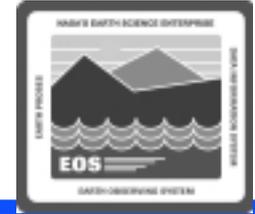
Chaining and On-Demand Production (Cont.)



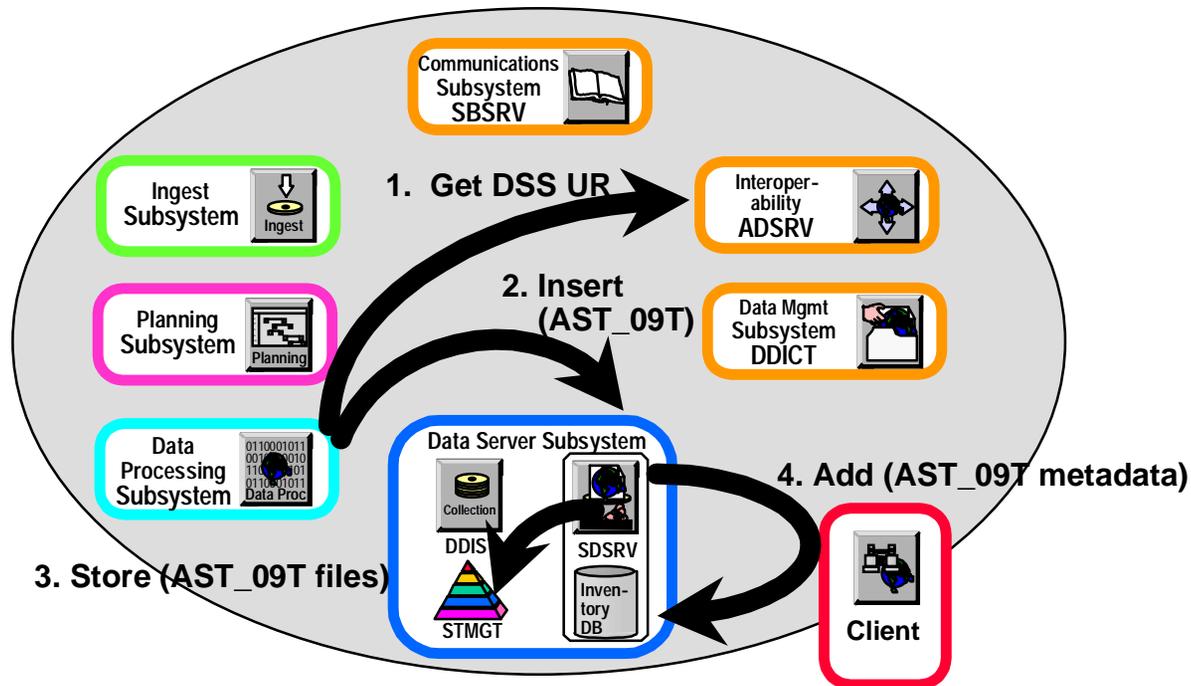
Archive newly created AST_09T (L2 Surface Radiance TIR) granule after completion of ACT PGE; update catalogue with reference to AST_09T



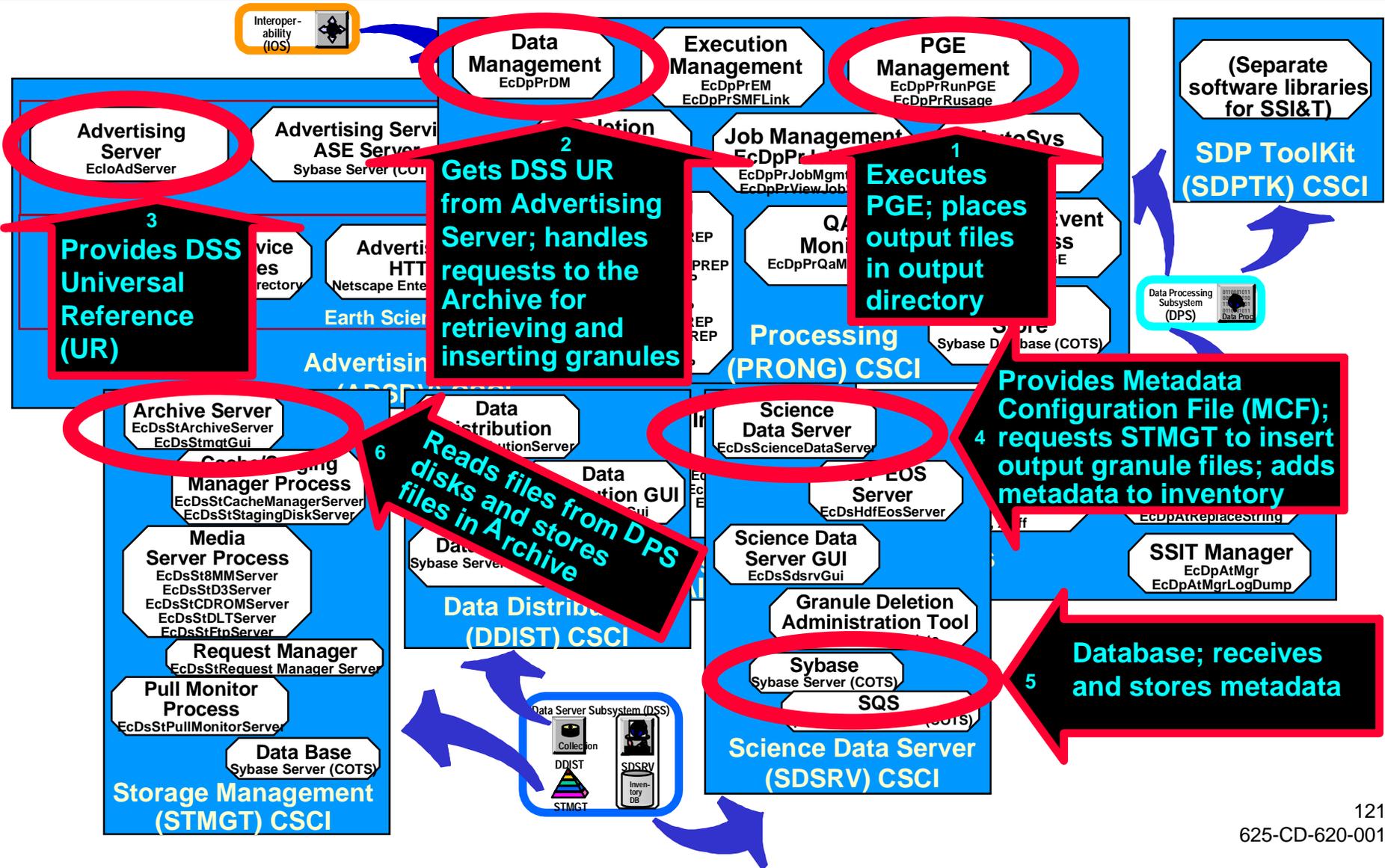
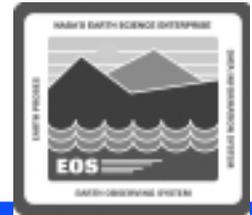
ASTER: PGE Execution and Output Insertion Process



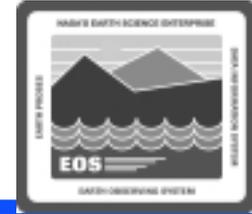
ACT PGE is successfully executed and newly created AST_09T (L2 Surface Radiance TIR) granule is archived; inventory is updated.



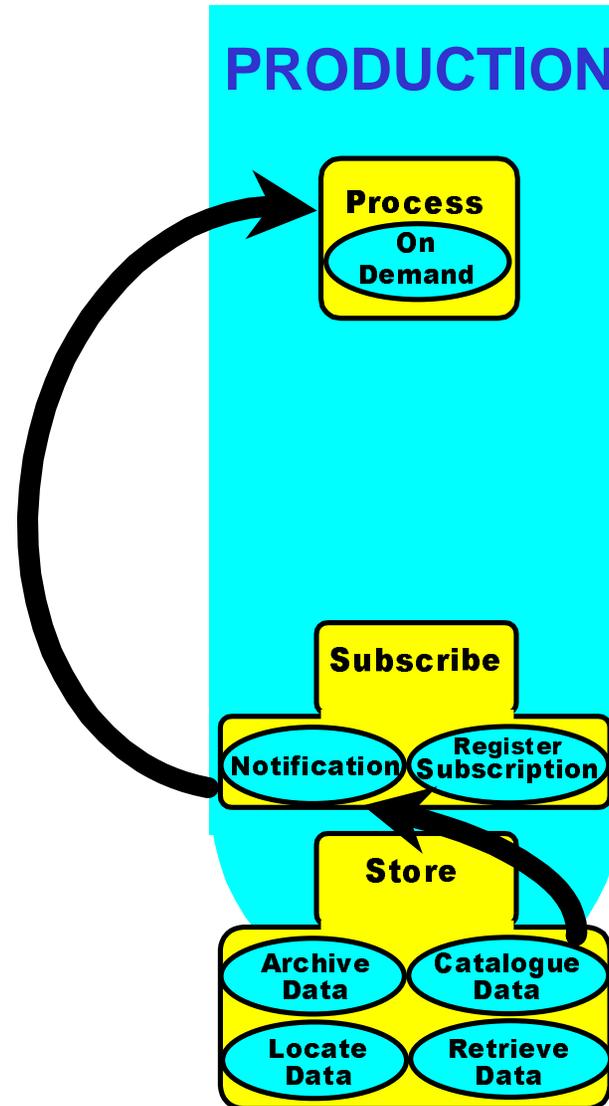
ASTER: CSCI/Component Role in PGE Execution and Output Insertion



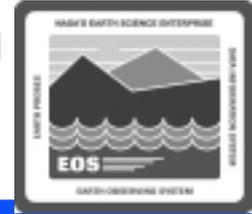
Chaining and On-Demand Production (Cont.)



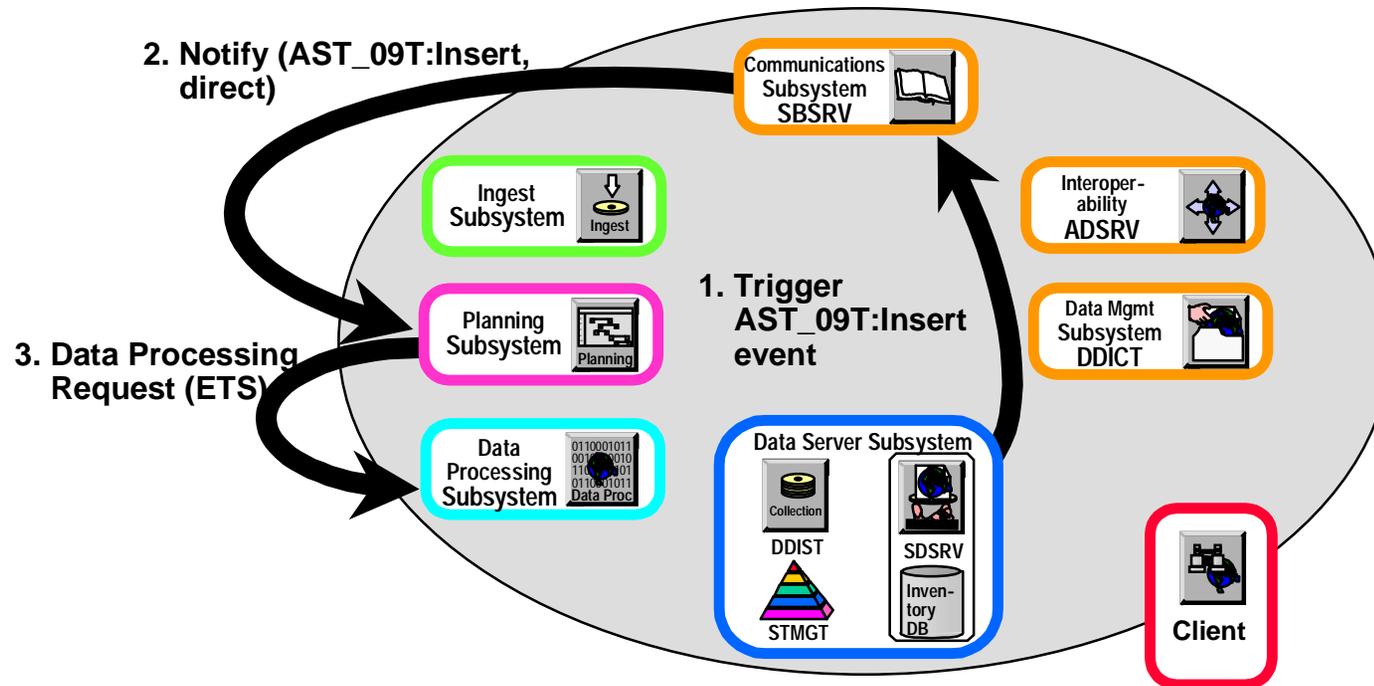
Insert terminates with an insert event notification to **Subscribe**, which in turn triggers initiation of ETS algorithm



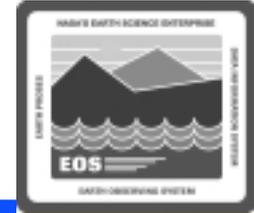
ASTER: Notification and Subscription Triggering Process



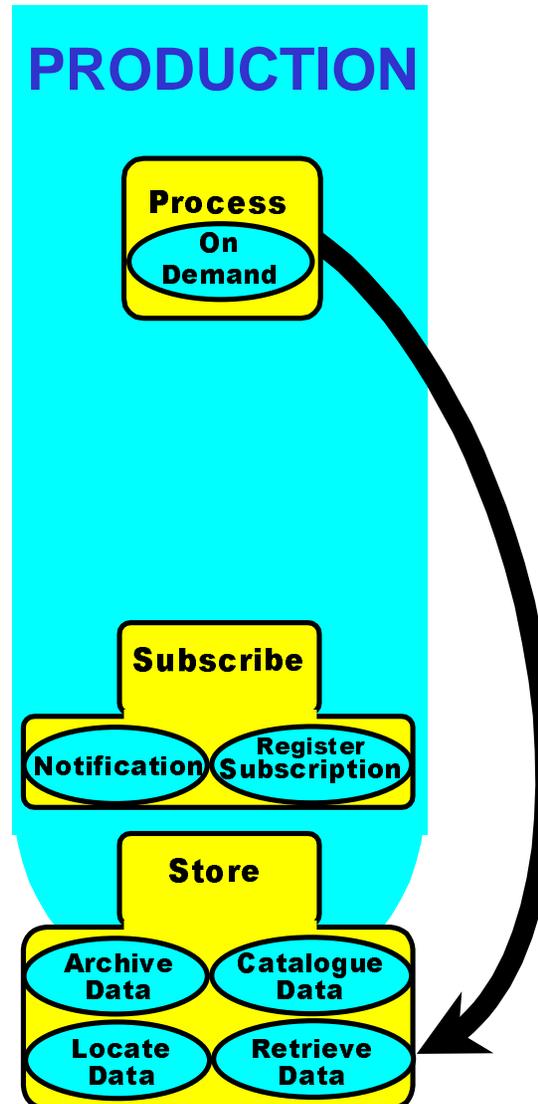
Notify all AST_09T:Insert subscribers. This includes notification of the Planning Subsystem, for chained processing.

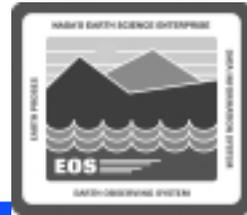


Chaining and On-Demand Production (Cont.)



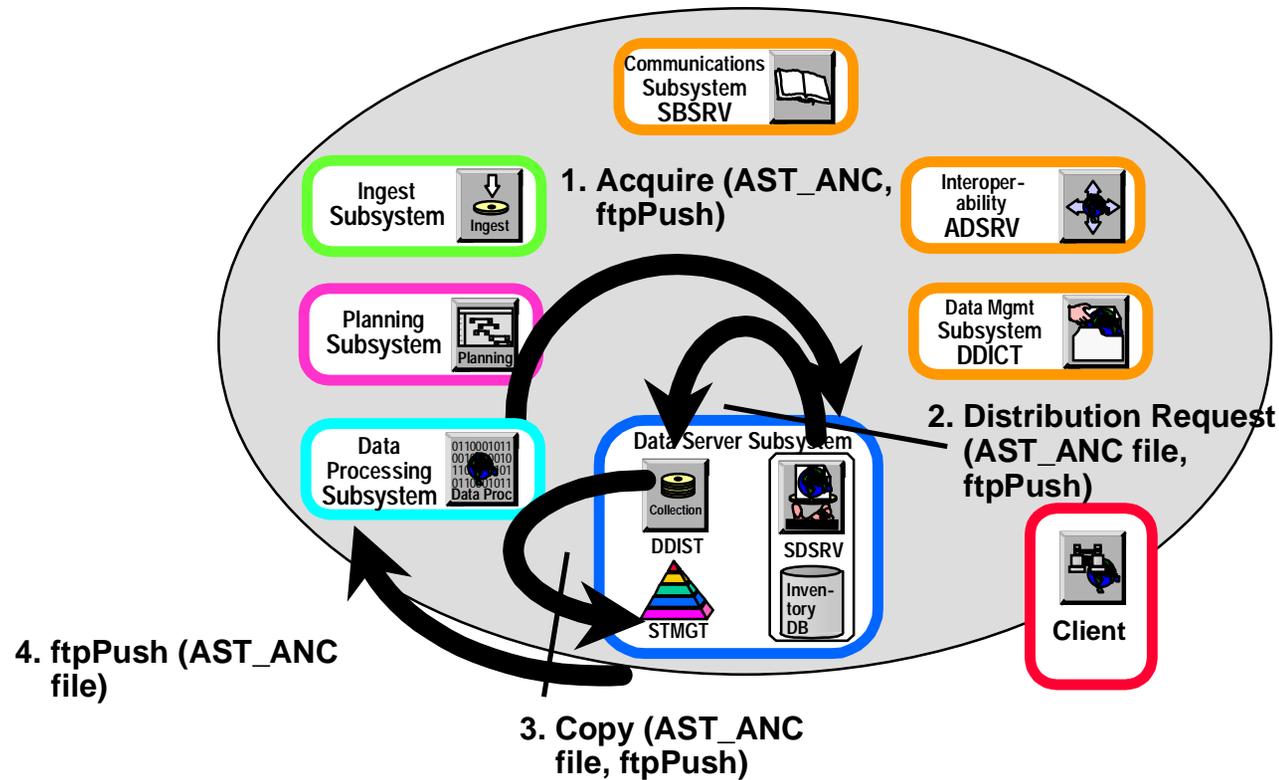
Retrieve AST_ANC
(ASTER ancillary
data set) granule
as input to ETS
production job;
PGE execution
begins



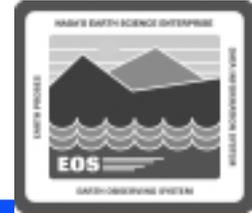


ASTER: Job (ETS) Staging Process

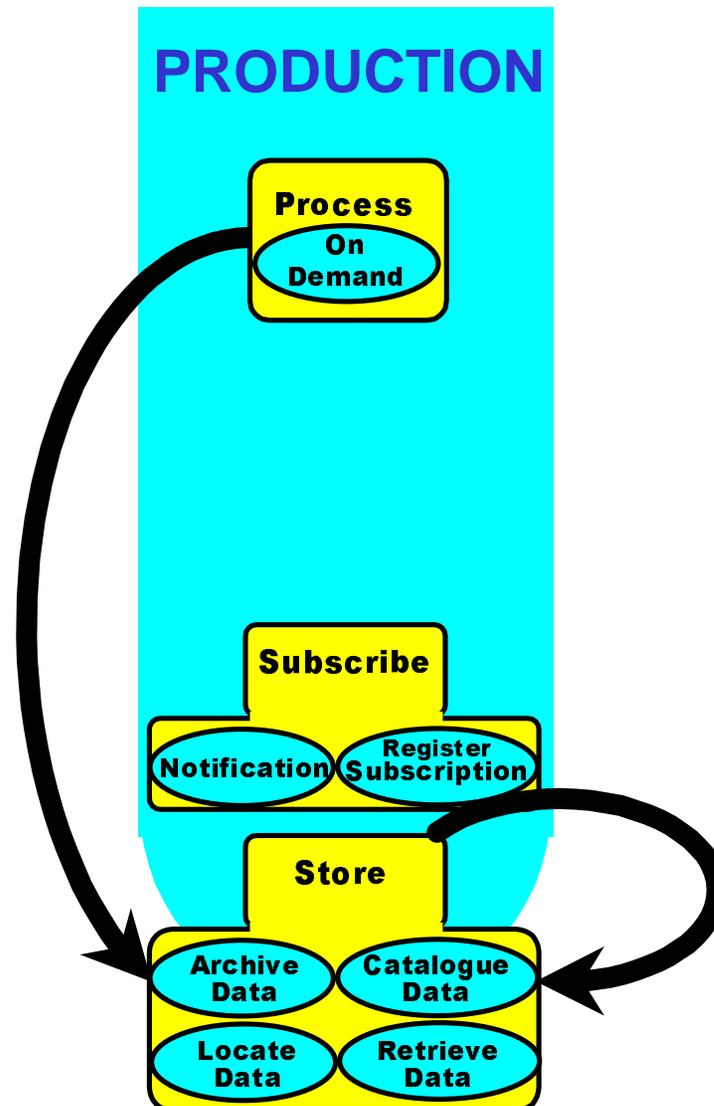
ETS production job retrieves required AST_ANC (ASTER ancillary data set) input data granule (Note: AST_09T is already available on DPS resources).



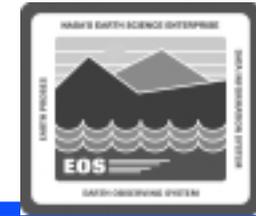
Chaining and On-Demand Production (Cont.)



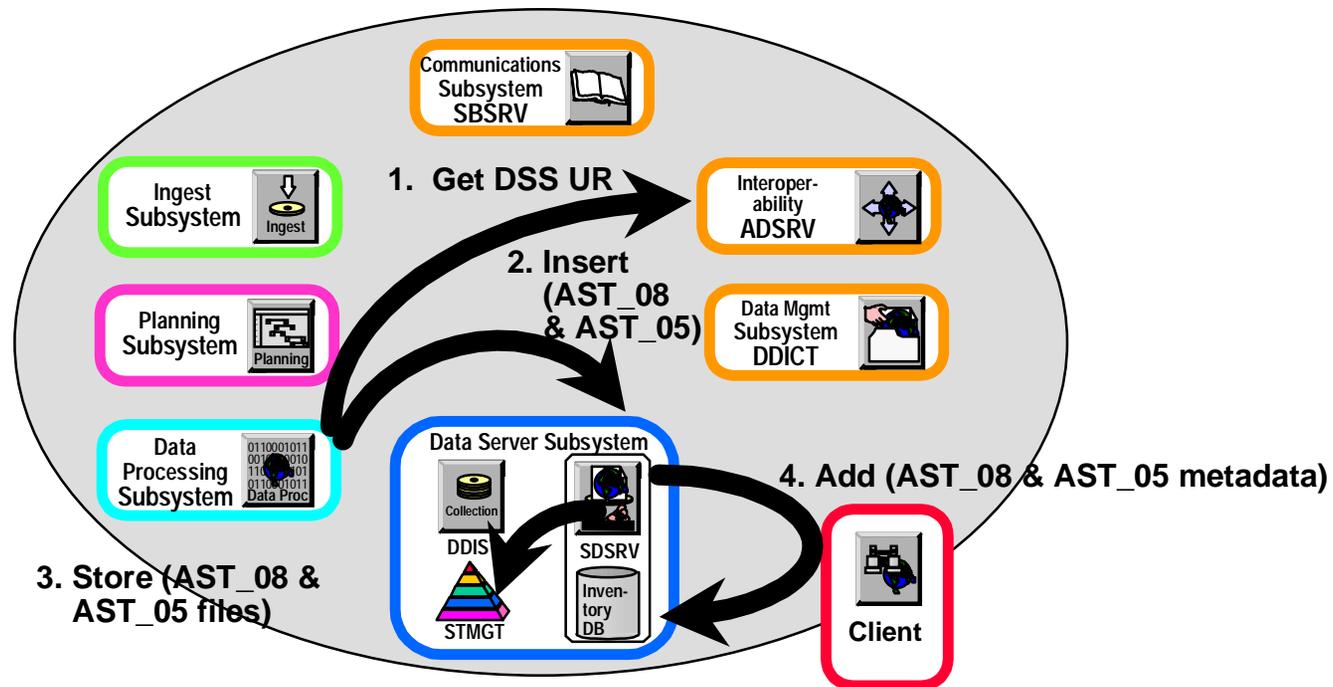
Archive newly created AST_08 (L2 Surface Temperature) and AST_05 (L2 Surface Emissivity) granules after completion of ETS PGE; update catalogue with references to AST_08 and AST_05



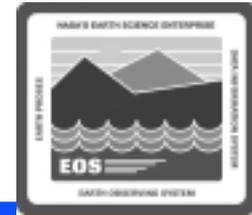
ASTER: PGE (ETS) Execution and Output Insertion Process



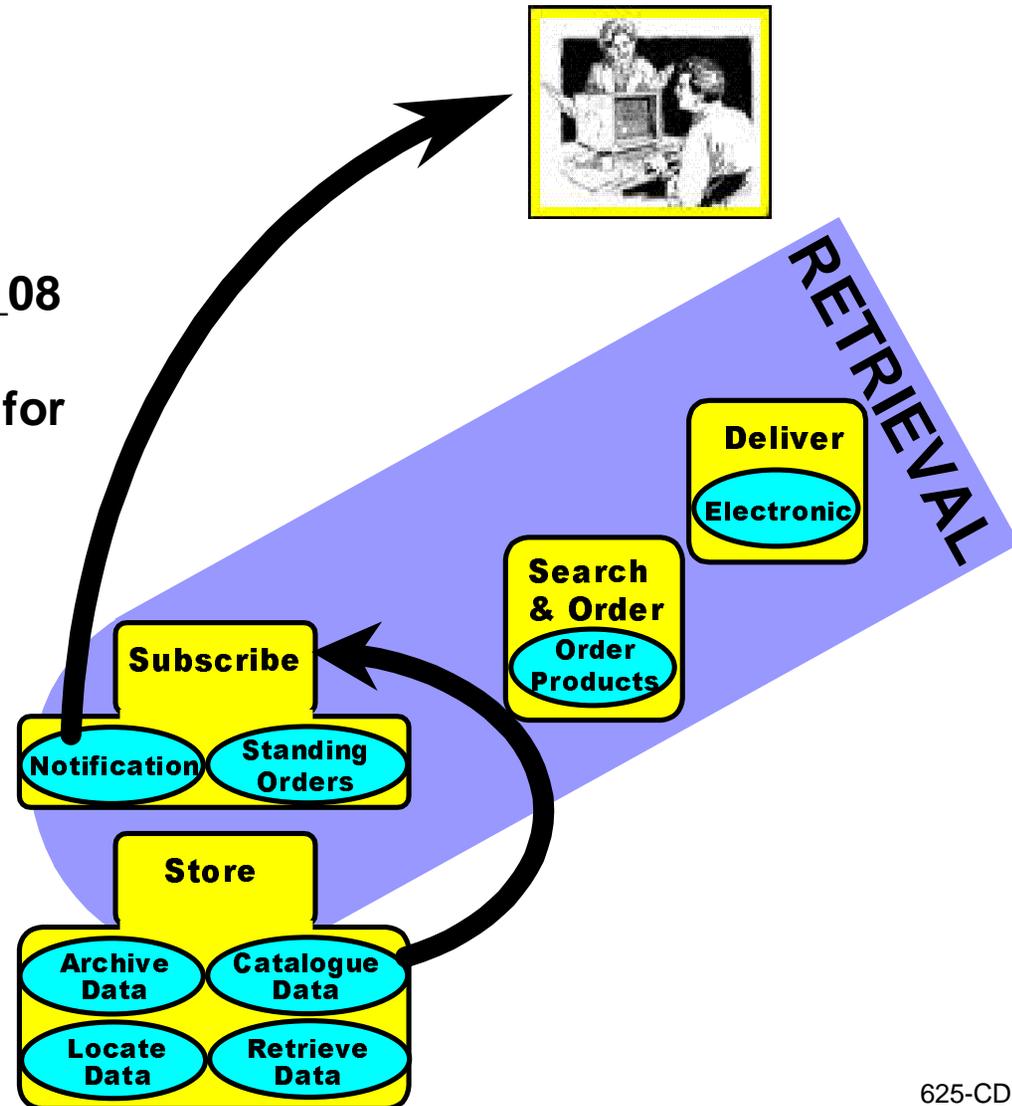
ETS PGE is successfully executed and newly created AST_08 (L2 Surface Temperature) and AST_05 (L2 Surface Emissivity) granules are archived; inventory is updated.



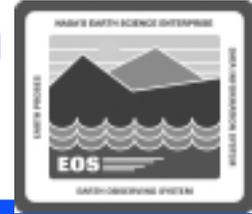
Chaining and On-Demand Production (Cont.)



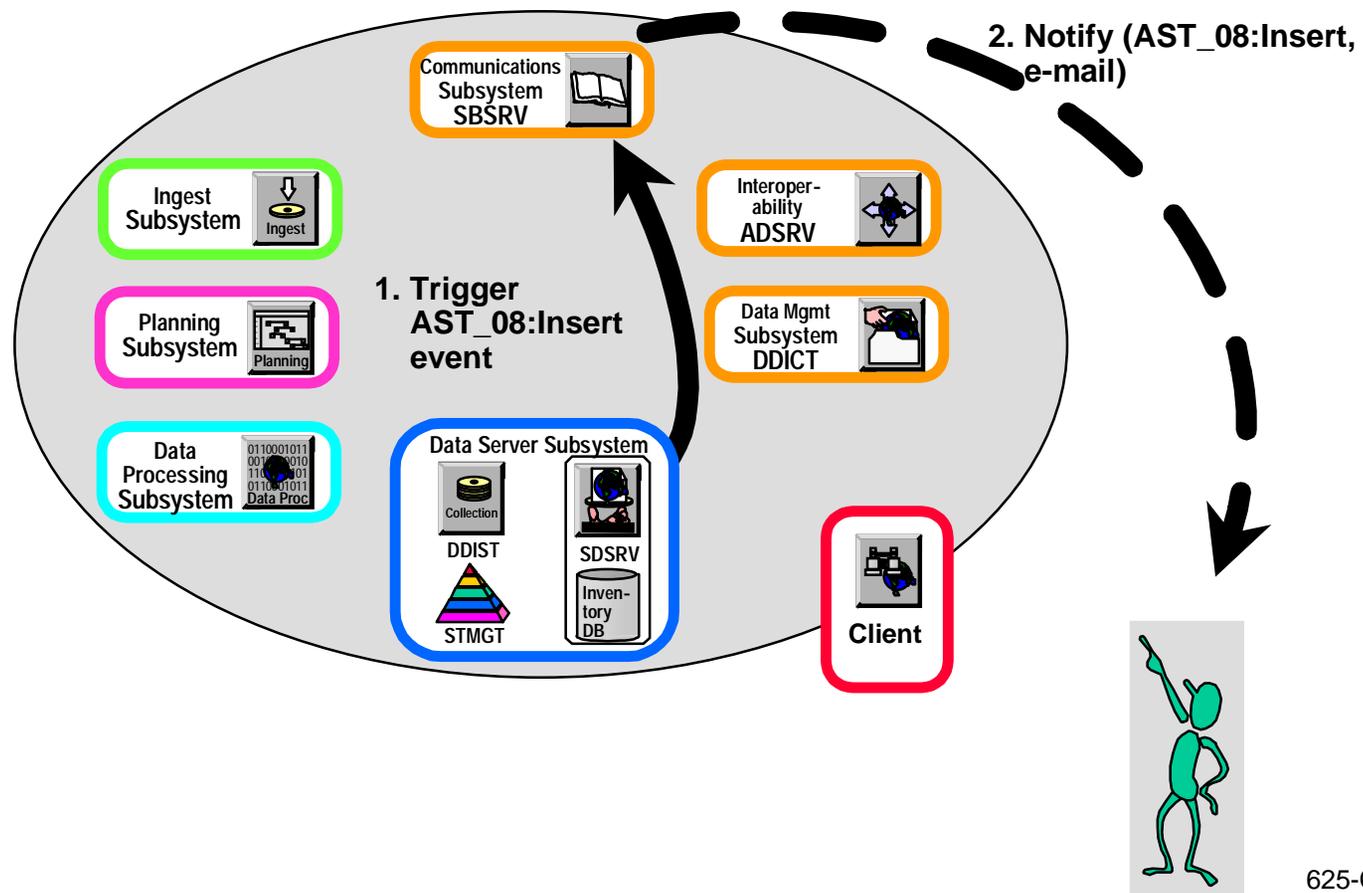
Insert terminates with an insert event notification to **Subscribe**, which triggers e-mail notification to the **Science User** that the **AST_08** granule has been inserted; standing order processing for new **AST_08** granule can begin



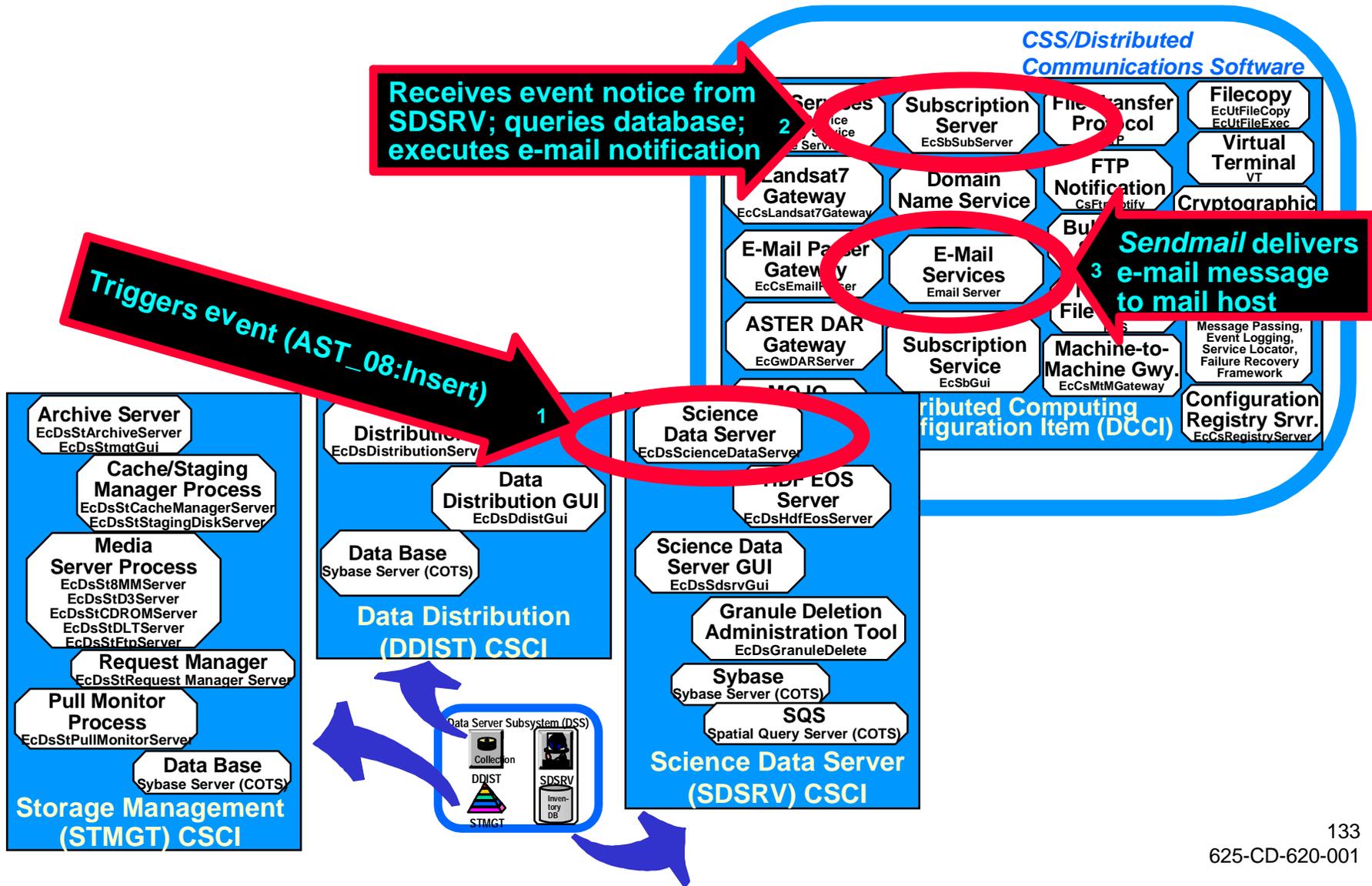
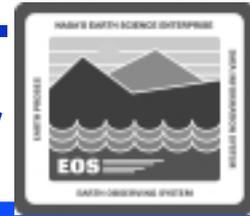
ASTER: Notification and Subscription Triggering (AST_08) Process



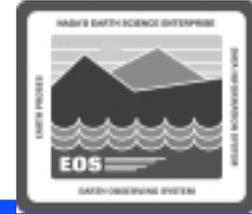
With insertion of the AST_08 (L2 Surface Temperature) granule, the ASTER Scientist is notified by e-mail; processing can begin for the standing order



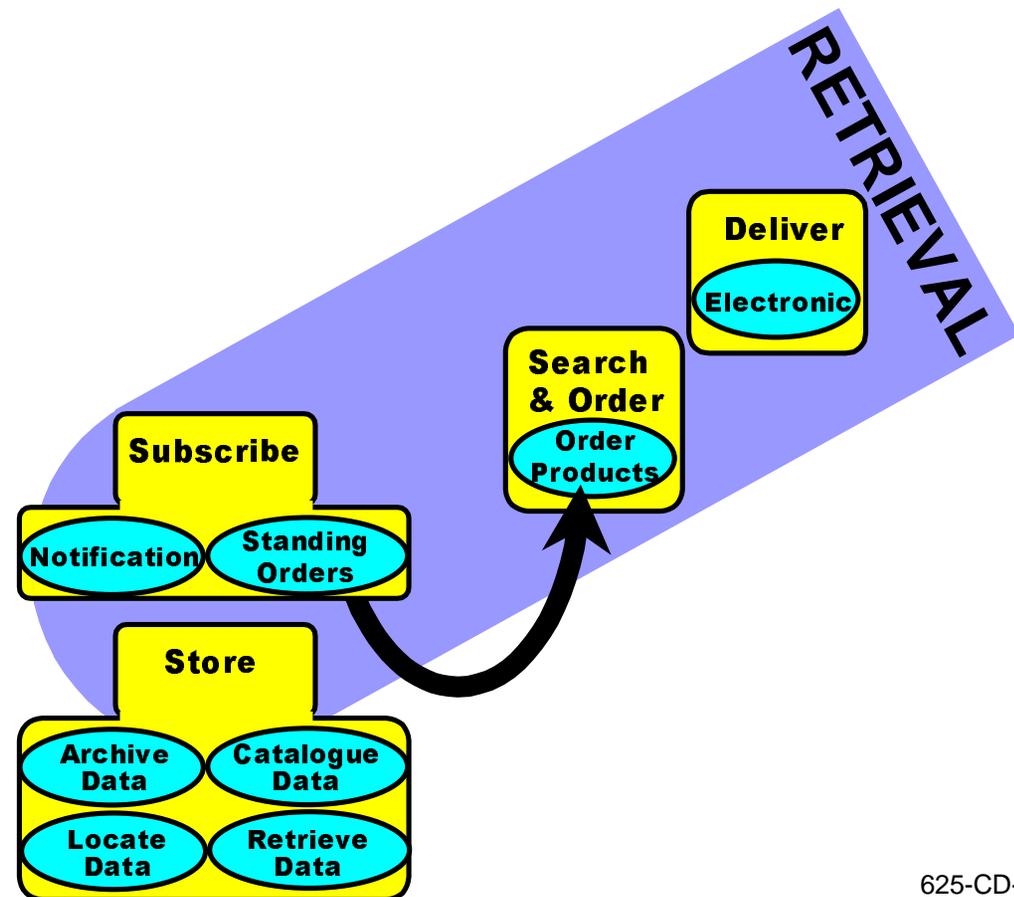
ASTER: CSCI/Component Role in Notification/Subscription (AST_08) Trigger



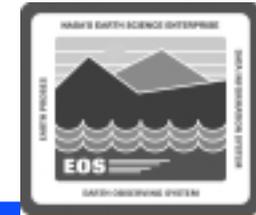
Chaining and On-Demand Production (Cont.)



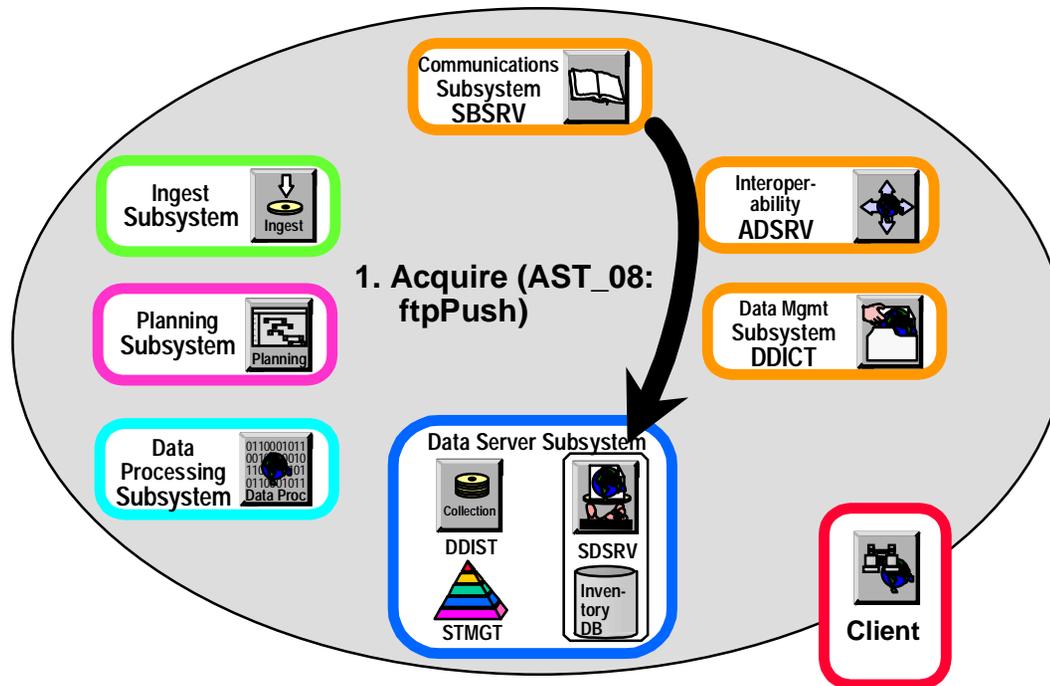
Submit order for new AST_08
on behalf of scientist



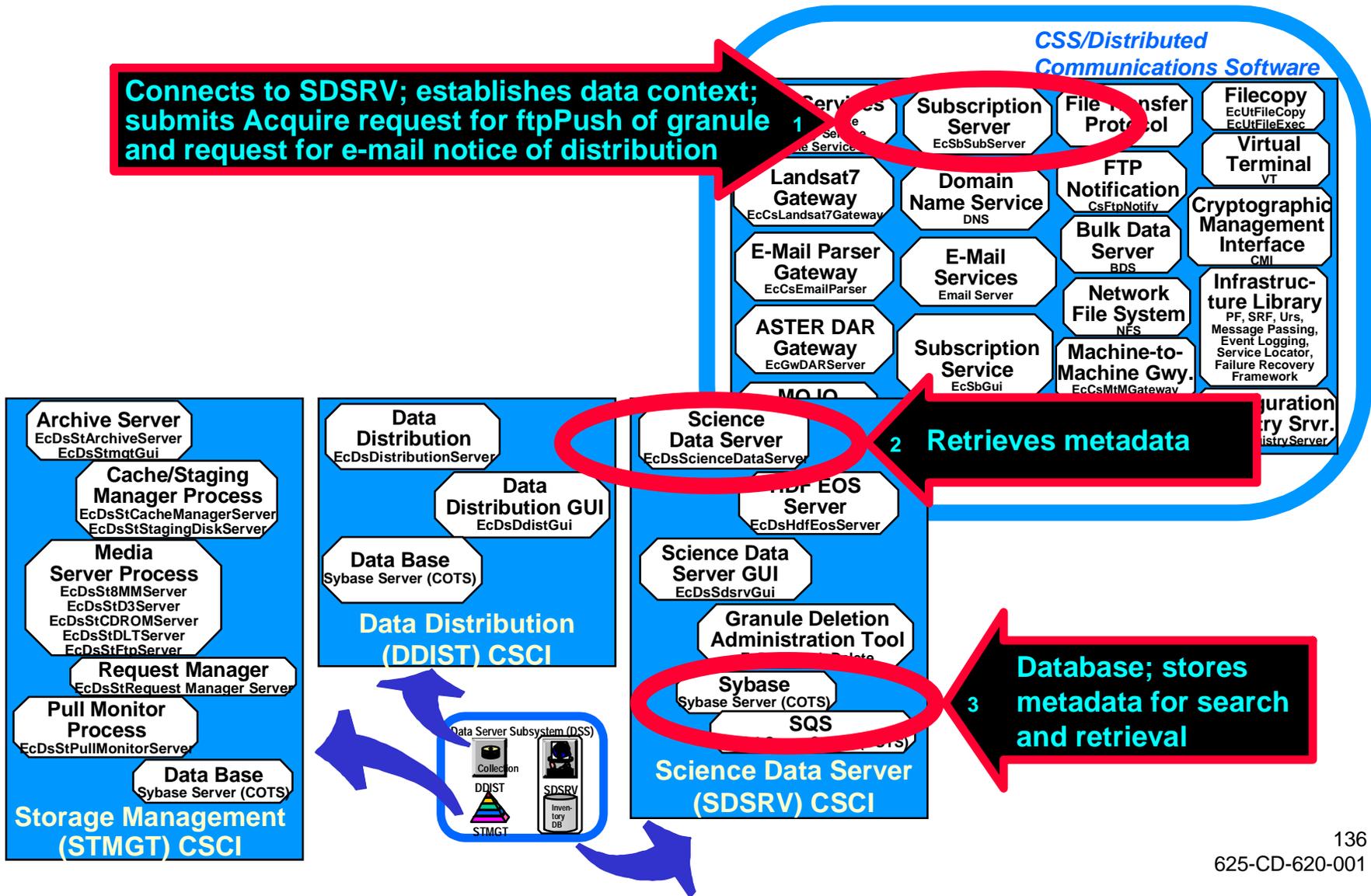
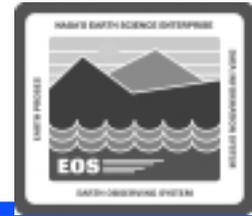
ASTER: Standing Order, Acquire Submission Process



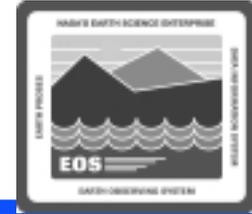
Subscription Server submits order for AST_08 (L2 Surface Temperature) data, via ftpPush, on behalf of the Science User



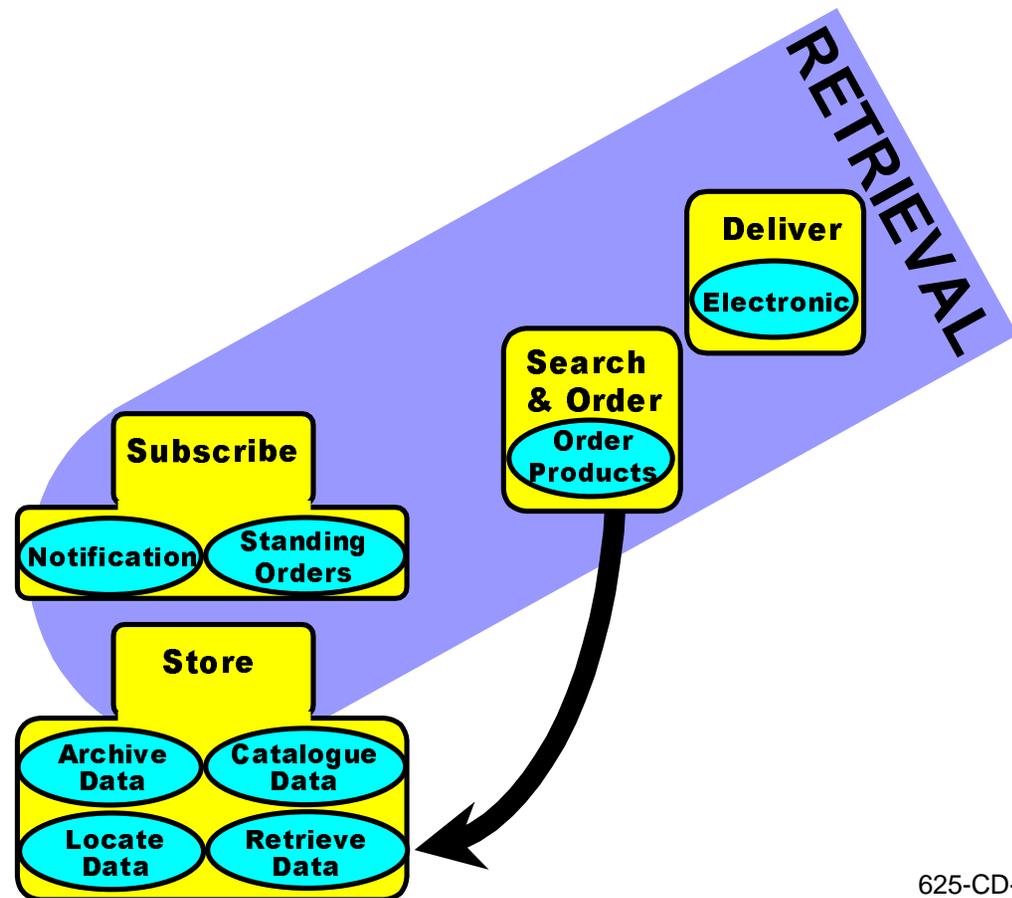
ASTER: CSCI/Component Role in Standing Order, Acquire Submission



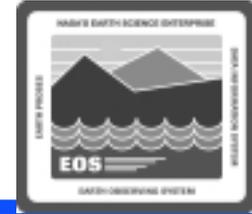
Chaining and On-Demand Production (Cont.)



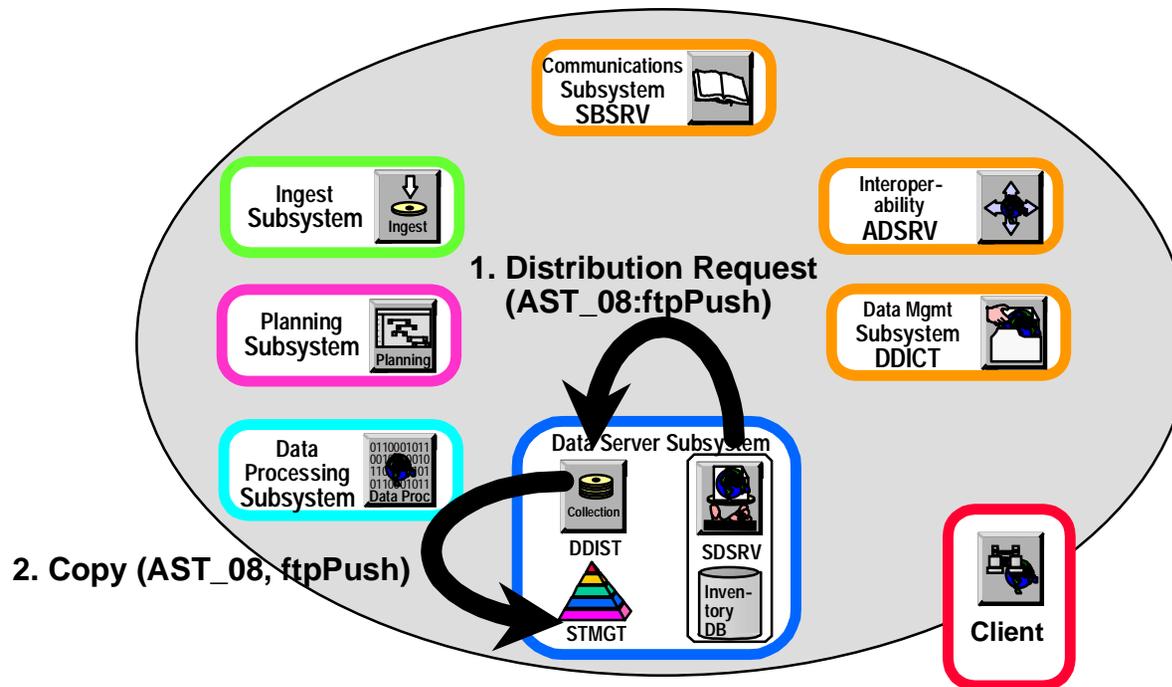
Retrieve newly created
AST_08 granule



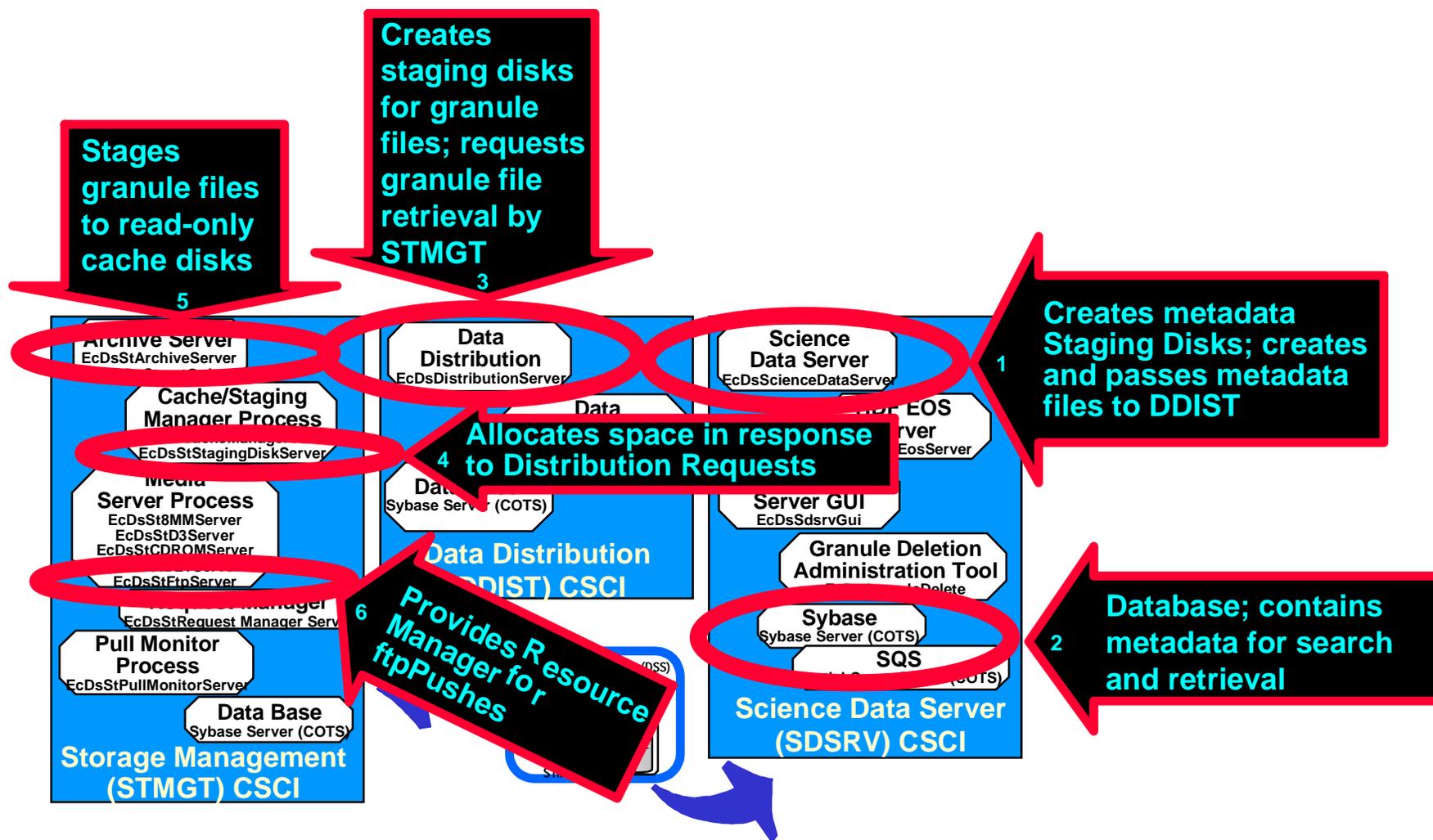
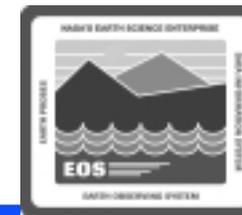
ASTER: Retrieval of Data for Distribution Process



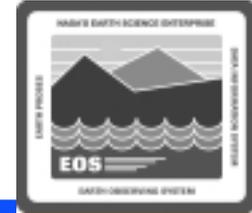
Retrieve newly created AST_08 (L2 Surface Temperature) granule from Archive.



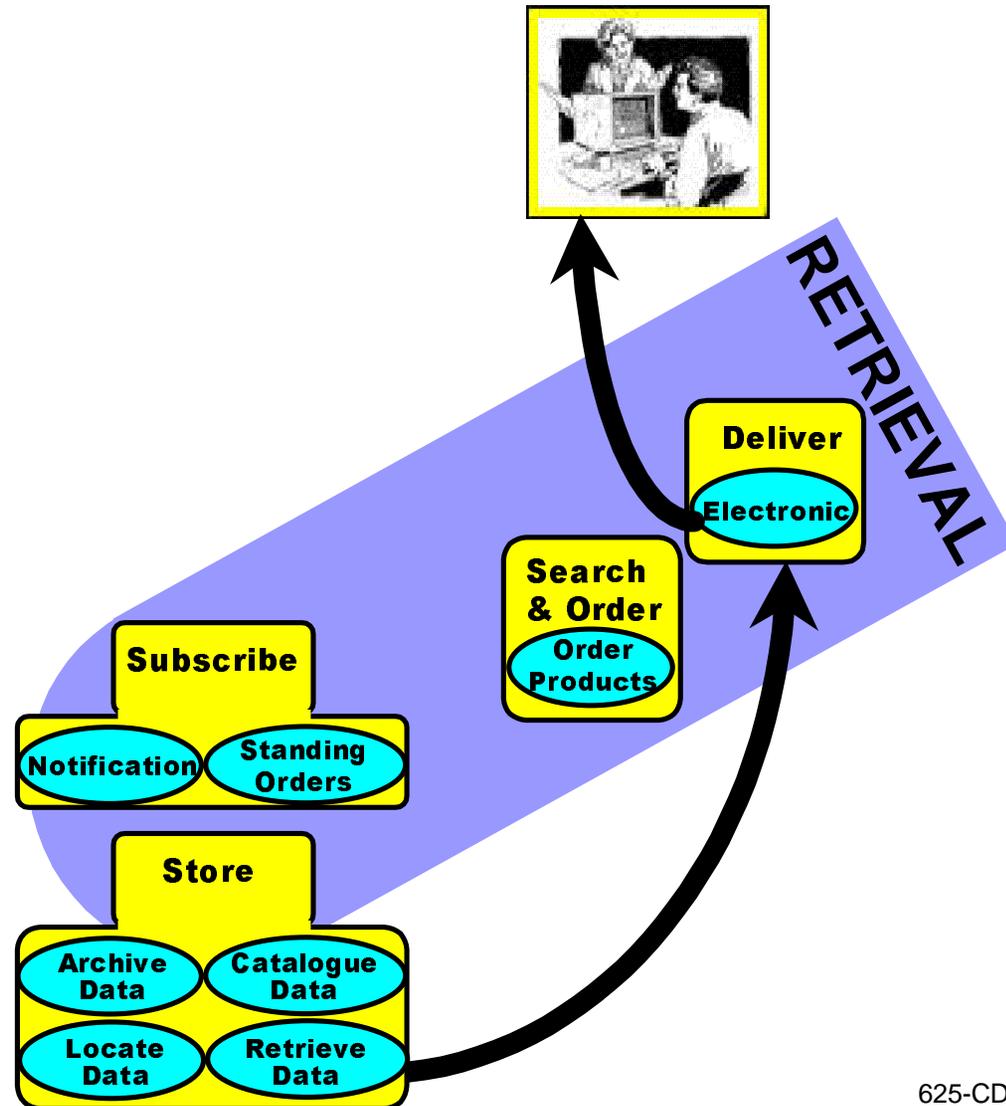
ASTER: CSCI/Component Role in Retrieval of Data for Distribution



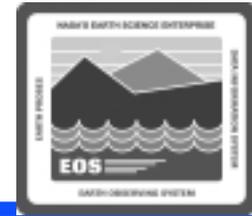
Chaining and On-Demand Production (Cont.)



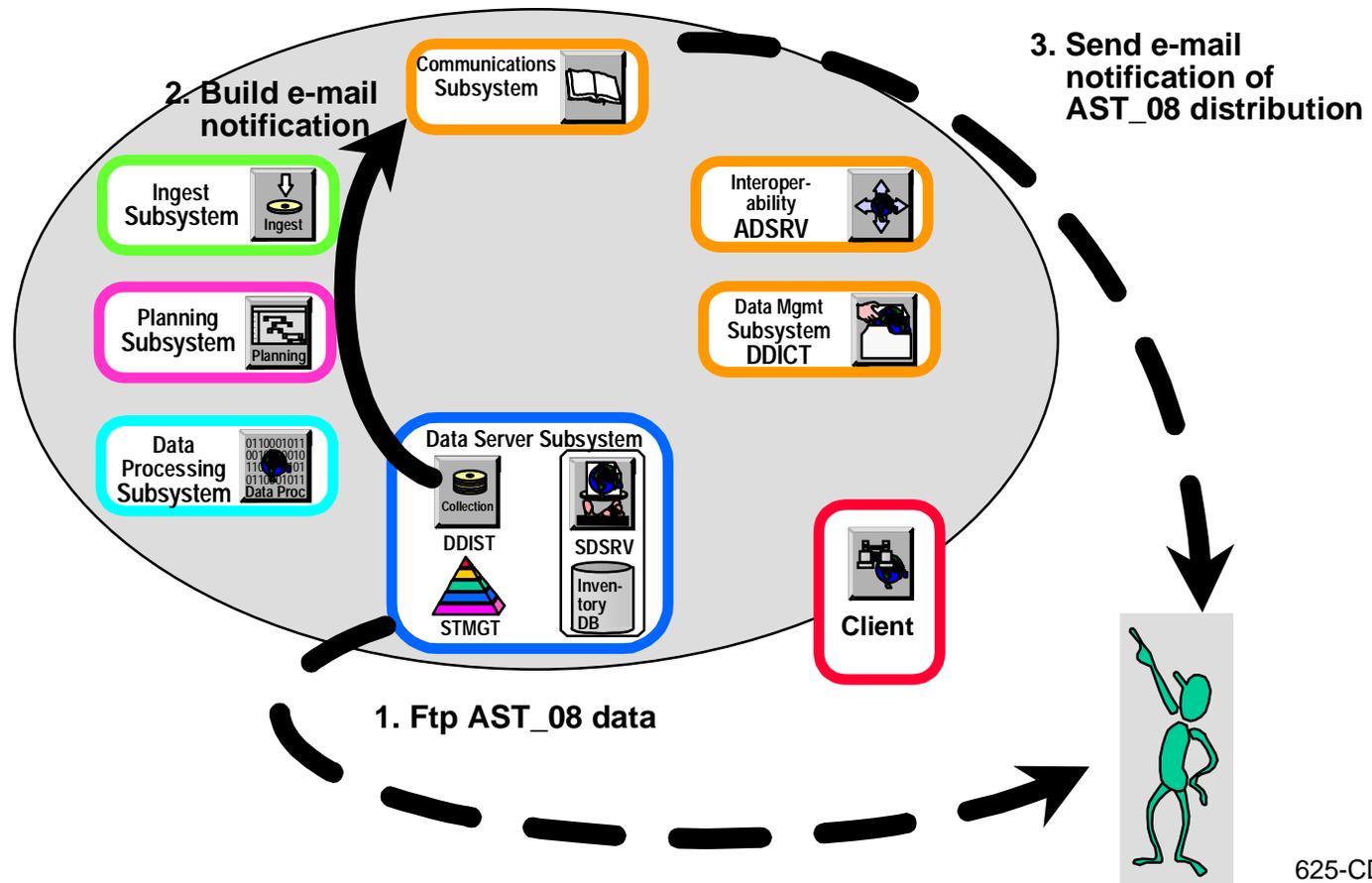
Ftp newly created AST_08 granule to scientist's workstation and send an e-mail notification of the distribution



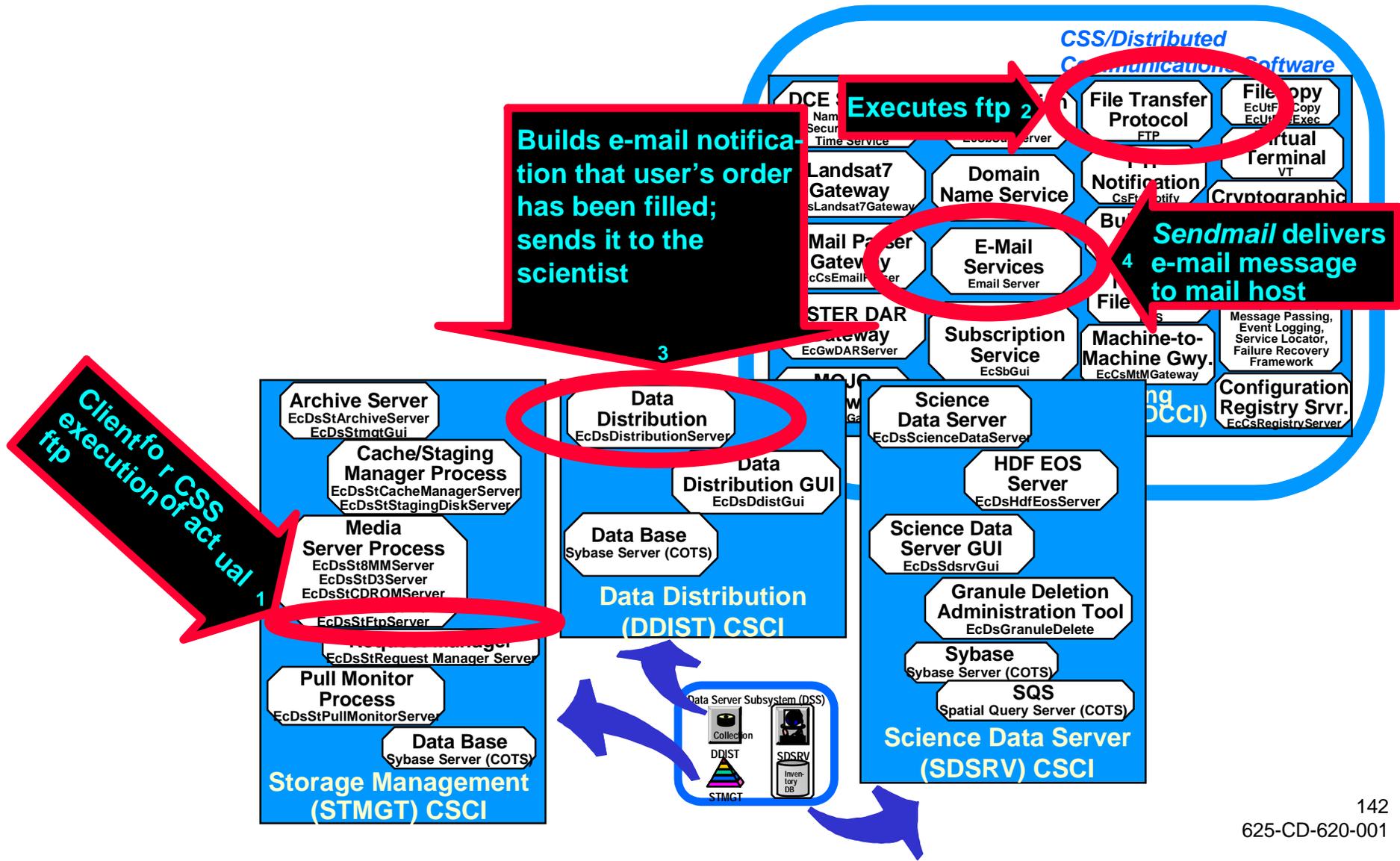
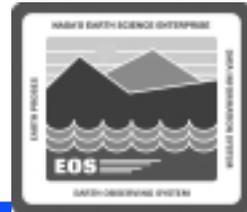
ASTER: Electronic Data Push Distribution Process



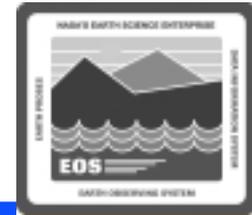
Ftp AST_08 (L2 Surface Temperature) granule to
ASTER Scientist's workstation.



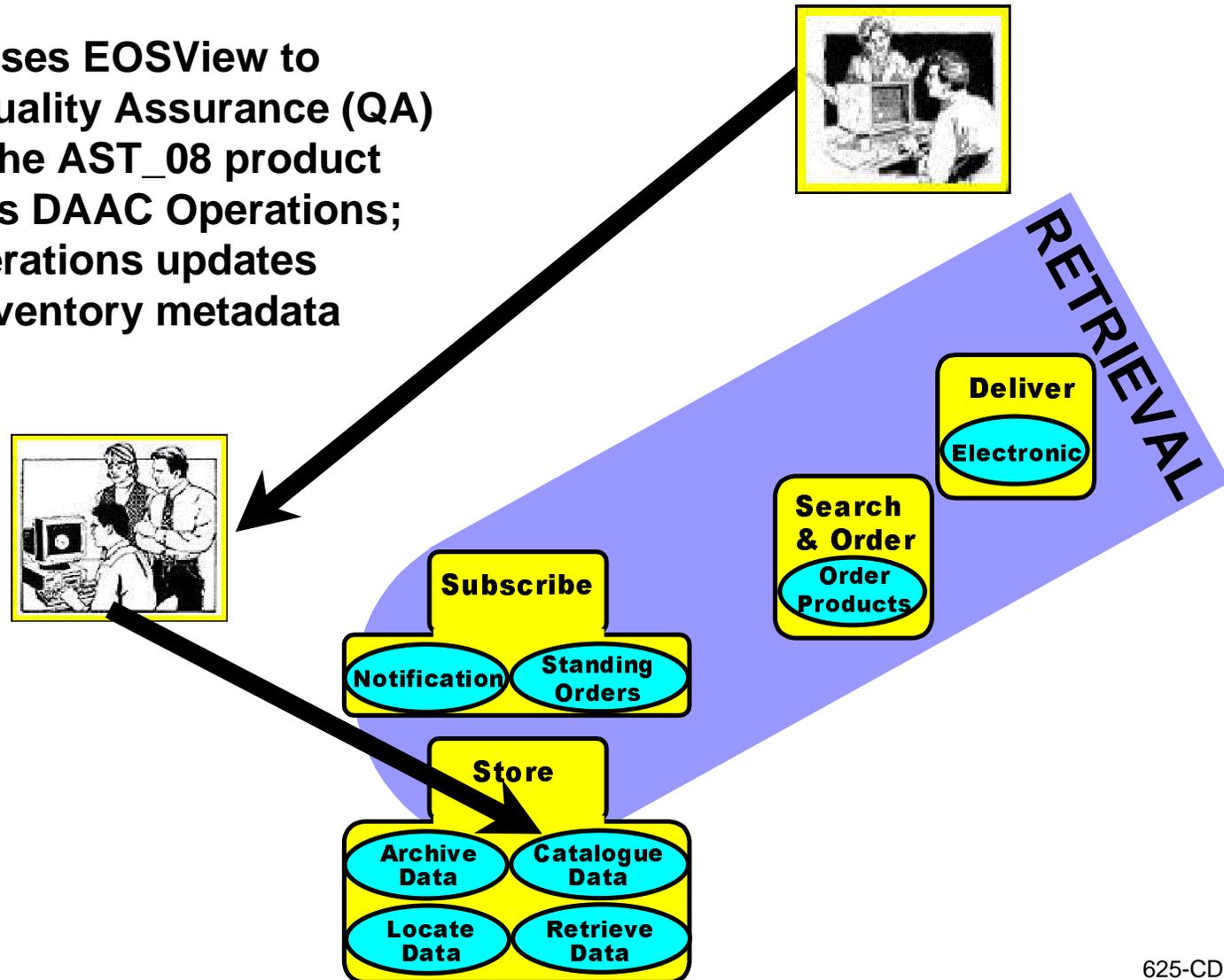
ASTER: CSCI/Component Role in Electronic Data Push Distribution



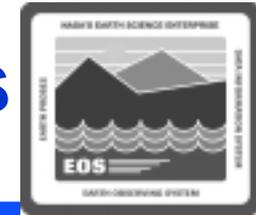
Chaining and On-Demand Production (Cont.)



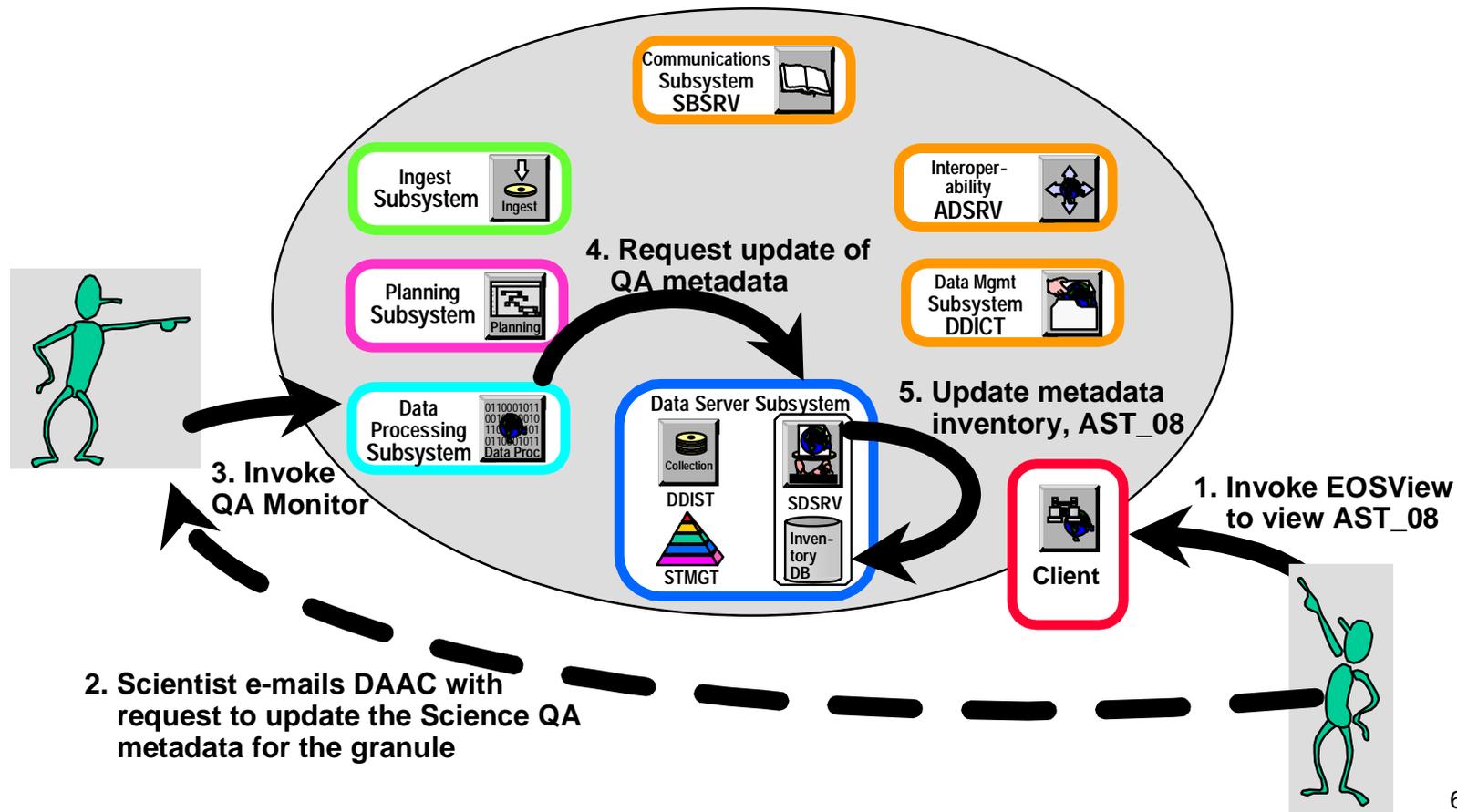
Scientist uses EOSView to perform Quality Assurance (QA) check on the AST_08 product and e-mails DAAC Operations; DAAC Operations updates AST_08 inventory metadata



ASTER: QA Metadata Update Process



Science User uses EOSView tool to review AST_08 (L2 Surface Temperature) product and sends e-mail request to DAAC Operations for update of the Science QA Metadata for the granule; DAAC Operations uses QA Monitor tool for the update.



ASTER: CSCI/Component Role in QA Metadata Update

